Symposium OPEN IVR
Cell Catalog

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Glossary **Glossary-1**

About this guide

This guide presents a detailed description of each cell on the Application Editor cell palette. It includes information about the available parameters, buffers and tables, and pathways to the next cell in the application.

Audience and prerequisites

To develop an application using the Application Editor, you do not need programming skills, but should feel comfortable developing flowcharts, using computer applications, and working with a menu-driven set of instructions.

Related documentation

For additional information concerning Symposium OPEN IVR AP software application development, consult the following Nortel (Northern Telecom) Release 4.0 Symposium OPEN IVR documentation:

- *Symposium OPEN IVR 4.0 Application Development Guide*
- *Symposium OPEN IVR 4.0 System Administration Guide*

You may also find it helpful to consult the following document:

- *Symposium OPEN IVR 4.0 SQL Server User Guide*

A concise description of the new features offered in Release 4.0 OPEN IVR AP software on the platform you are using exists in the *Symposium OPEN IVR 4.0 Product Guide* .

You can find information in the *Product Guide* concerning issues which may be helpful when developing your application.

You may find it helpful to consult the following manuals from other vendors:

- *Informix SE System Administrator's Guide*
- *Ingres Database Administrator's Guide*
- *Oracle7 Server Applications Developer's Guide*
- *Sybase System Administrator's Guide*

Symposium OPEN IVR 4.0 documentation

The following is a list of Symposium OPEN IVR 4.0 documentation.

Document	NT number/ A0 number/ P0 number
Symposium OPEN IVR 4.0 Getting Started Guide	NTVE8201 A0732100 P0881271
Symposium OPEN IVR 4.0 Product Guide	NTVE8202 A0732101 P0881273
Symposium OPEN IVR 4.0 System Administration Guide	NTVE8203 A0732102 P0881274
Symposium OPEN IVR 4.0 Application Development Guide	NTVE8209 A0732108 P0881275
Symposium OPEN IVR 4.0 Cell Catalog	NTVE8208 A0732107 P0881276
Symposium OPEN IVR 4.0 Installation, Upgrade, and Maintenance Guide	NTVE8204 A0732103 P0881277
Symposium OPEN IVR Planning and Engineering Guide	NTVE8205 A0732104 P0881278

Symposium OPEN IVR 4.0 Error Messages Guide	NTVE8206 A0732105 P0881279
Symposium OPEN IVR 4.0 Web Option Guide	NTVE8210 A0732109 P0881281
Symposium OPEN IVR 4.0 SQL Server User Guide	NTVE8216 A0732115 P0881282
Symposium OPEN IVR 4.0 Service Console Interface Reference Manual	NTVE8207 A0732106 P0881284
Symposium OPEN IVR 4.0 VT100 Host Connectivity Configuration and Development Guide	NTVE8221 A0732120 P0881286
Symposium OPEN IVR 4.0 Text-to-Speech Option Guide	NTVE8213 A0732112 P0881292
Symposium OPEN IVR 4.0 Speech Recognition Option Guide	NTVE8212 A0732111 P0881293
Symposium OPEN IVR 4.0 Fax Option Guide	NTVE8211 A0732110 P0881294
Symposium OPEN IVR 4.0 CAS and ISDN Signaling Option Guide	NTVE8214 A0732113 P0881296

Symposium OPEN IVR 4.0 Integration Package for Meridian Link User Guide	P0881297 NTVE8215 A0732114
Symposium OPEN IVR 4.0 Prompt Import Utility Guide	NTVE8218 A0732117 P0881400
Symposium OPEN IVR 4.0 SNA Host Communications Guide	NTVE8227 A0732774 P0881750

Guide structure

Introduction

- Presents an introduction to the Cell Catalog and describes the manner in which information is presented.

Cell Catalog

- Presents an alphabetically organized description of each cell on your Cell Palette. It includes information about the available parameters, buffers and tables, and pathways to the next cell in the application.

Conventions used in this guide

Throughout this guide, several typographic conventions have been used to highlight certain types of information:

- Items that appear on the Symposium OPEN IVR screens are identified in quotes, for example:

  the “Timeout” part of the parameters window

- Field names, Prompts, File and Menu names, Directories, Accounts and Options are shown in a different typeface, for example:

  ```
  /sci>
  ```

  ```
  sci/install menu
  ```

  ```
  /u/nortel/3270/getbalance.act file
  ```

- Symposium OPEN IVR buffer and cell names are shown in all uppercase characters, for example,

  the CURRENT MESSAGE buffer, in the GDAT cell

- Items you must type are shown in bold in a different typeface, for example:

  type **`tn5250`** at the prompt

- Variables shown in command lines appear in italics, for example:

  the `host_cfg`*n* file, where *n* is a variable representing a board number

- Key names you press are shown in angled brackets, for example:

  the <F1> key

Keyboards usually have keys named <Return> or <Enter> that perform the same function. For convenience, this guide uses the keyname <Enter> to represent both keynames.

Introduction

This guide catalogs all the Application Editor cells, and presents them in alphabetical order. Included is a description of each cell's use within an application; a list of the buffers it uses or updates; and a list of its parameters, branches, and tables.

Cell types

Application Editor cells are classified into different categories. Each category is represented as an icon on the cell palette. A list of the cell categories follows:

- Mailbox
- Messages
- Prompt and DTMF input
- Outdialing
- Data manipulation
- Call management
- Application scheduling
- Database management
- Audio path
- Execute application
- User process access
- SQL server
- Fax
- Speech recognition

- Multilingual management
- Host communication
- ADSI

The following section contains a brief overview of each of these cell types. Detailed descriptions of each cell are available in this document. Refer to the Release 4.0 *Symposium OPEN IVR Application Development Guide* for information about the DFLT cell, which is also referred to as the START cell.

Mailbox cells

The mailbox cells allow you to manipulate a mailbox and its contents.

Add Current Message (AMSG)

Adds a previously recorded message to a mailbox in the application's message database.

Get a Message (GMSG)

Retrieves a message from a mailbox after MSGS accesses the mailbox.

Get Message List (MSGS)

Creates or accesses a mailbox, or both. You must create a mailbox before you can add messages to it. MSGS must access a mailbox before you can retrieve messages from it.

Update Message List (UMSG)

For versions prior to OPEN IVR Release 2.0, UMSG was used to confirm changes made to a mailbox with AMSG or DMSG cells, or both. Now applications automatically perform this confirmation.

Update Password (UPWD)

Changes the password associated with a particular mailbox.

Message cells

The message cells allow you to manipulate messages stored in the message database. Messages are recordings made by callers as an application executes. Each message, when stored, becomes part of a message database.

Copy Message (CMSG)

Copies a message from one MRS to another, or to another VSN on the same MRS.

Delete Message (DMSG)

Deletes a message from the message database. The message is also deleted in both the MRS and the message database.

Play a Message (PMSG)

Plays a message.

Record Message (RMSG)

Records a message onto the MRS. This message is not permanently stored in the message database until an AMSG cell stores it.

Prompt and DTMF Input cells

Prompts are voice recordings that guide callers through an application. There are several cells that deal specifically with promoting callers and collecting data from them.

Play Prompts and Get Data (GDAT)

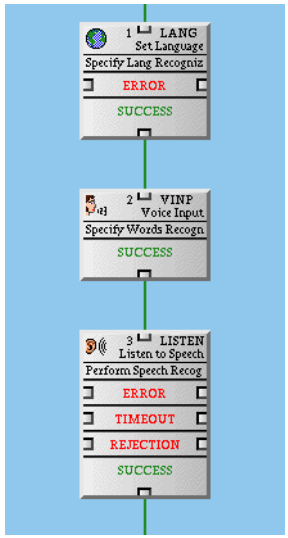
Plays one or more prompts and collects information from the caller. For example, a GDAT cell might play a prompt saying “Please enter your password.” When the caller supplies the password by either pressing telephone keys or speaking, GDAT automatically collects the digits or voice data and stores them in a buffer. GDAT can support speech recognition as well as DTMF.

Listen to Speech (LISTEN)

LISTEN performs Automatic Speech Recognition (ASR) for OPEN IVR applications. It can initiate the recognition process, as well as retrieve information spoken by a caller, evaluate and assign a Confidence Level to it, and store the information in a buffer, thereby making the spoken information available to the application.

The LISTEN cell performs the speech recognition. Figure 1 shows an example involving a LANG cell, a VINP cell, and a LISTEN cell.

Figure 1: LISTEN cell with LANG and VINP



Play Menu and Get Data (MENU)

Plays prompts to the caller (for example, “To save this message, press 1. To review it, press 2. To delete it, press 3.”) When the caller presses a digit, MENU branches to a cell that performs the activity the caller has chosen. MENU can support speech recognition.

Play Prompts with Data (PDAT)

Takes the contents of a buffer and reads it to the caller. The contents may be either a number or an alphanumeric. The number can be read in any of several formats: date, time, date and a time, number, series of digits, and introductory prompts. Consider the number 1234: if the type is number, PDAT plays a series of prompts that say “One thousand, two hundred thirty four;” if the type is digits, PDAT reads the same number as “one two three four.” PDAT also plays back the proper syntax for other languages selected.

Play Prompts (PLAY)

Plays one or more prompts to the caller; for example, “Hello. Thank you for calling XYZ Corporation.” Prompts are stored as VSN files on the MRS.

Record Prompt (RECP)

Records a prompt. Although OPEN IVR has a Prompt Loading Facility for recording prompts, you may need to create a new prompt or update an old one during the course of an application. The RECP cell type provides you with an easy way to record prompts over the telephone as part of an application. You can record a prompt remotely when you are away from the location where your MRSs are installed.

Play Name (PNAME)

The PNAME cell plays a named file to the connected caller. You can use the PNAME cell to play utterances captured using the `Store Speech As Utterance` parameter of the LISTEN cell.

Outdial cells

OPEN IVR can originate calls by using outdial cells. You can specify any string of characters to be outdialed.

Call progress analysis (which must be set in the trunk-type file) can detect modems, fax machines, and network SIT tones. In addition, it can distinguish between a live human voice and a recorded voice on an answering machine.

Bridge Outdial (BOUT)

Makes an outgoing telephone call for a caller who is already connected to the MRS, then connects the original caller to the new call. BOUT originates the new call on a different channel while the caller remains connected to the MRS. BOUT is typically used to connect the caller to a device or operator external to the MRS. For example, the application may need to access an external device in order to give the caller stock quotes. BOUT can also be used to connect the caller with an operator. Note that BOUT does not utilize switch functionality to bridge calls; therefore, you must have the appropriate hardware support on the MRS to use this cell.

Continuation Outdial End (CEND)

Ends a secondary call originated by a COUT (Continuation Outdial) cell.

- CEND hangs up the secondary call and resumes the original phone call.
- CEND joins the two callers together with the MRS in a conference call.
- If the recipient of the secondary call hangs up before the application ends the secondary call, CEND resumes the original phone call, allowing it to continue normally.

Continuation Outdial (COUT)

Places the incoming caller on hold and then makes a secondary call on the same channel. This is accomplished by using a hook-flash transfer. Therefore, the associated phone line on the MRS must support the hook-flash transfer feature. The second call is supervised, and the result of the call causes the appropriate branch (that is, answer, busy, no answer).

Dial Digits (DIAL)

Dials DTMF digits during a call that is already in progress. This is useful for sending digits to an external device, such as a paging terminal. This cell can also generate a hookflash, and a pause during dialing digits.

Directed Outdial (DOUT)

Allows an application to originate a phone call. Before DOUT dials the phone number, it can check for dial tone or voltage on the line. After it dials, it checks to see if the call has been answered and branches accordingly. DOUT is used for outbound applications that make wake-up or reminder calls as well as for facsimile delivery applications.

Transfer Outdial (XFER)

Makes a phone call for a caller (who is already connected to the MRS) by means of a hook-flash transfer. The associated phone line on the MRS must support the hook-flash transfer feature. XFER will perform a hook-flash, dial the second party's phone number, and hang up the line.

Data Manipulation cells

OPEN IVR uses buffers to store information and pass it from one cell to another. Many cell types use information stored in named buffers, but these data cell types are specifically designed to let the application developer manipulate buffers directly.

Branch on Value or Range (CASE)

Compares the contents of a buffer to a selection of predefined criteria, and passes the control to the branch corresponding to the criteria met.

Convert Data (CDAT)

CDAT converts data from one format to another. You must specify the input format, output format, source buffer, and destination buffer. The following data conversion types are available:

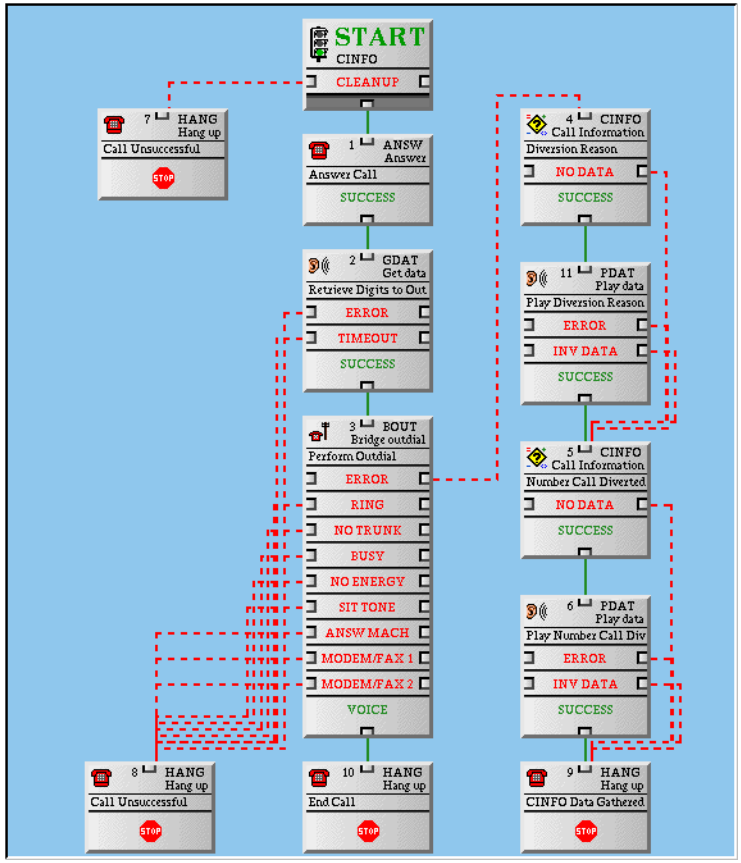
- DATE
- TIME
- DATE & TIME
- CURRENCY

Call Information (CINFO)

Provides an application with the capability to access DNIS information, ANI information, diversion reasons, the calling line category, and the number from which a call is diverted from the telephone network during either the initiation of an incoming call, or the execution (through the DOUT, BOUT, or COUT cell) of an outgoing call.

Figure 3 presents an application that demonstrates the use of the CINFO cell. Including multiple CINFO cells in an application can provide a significant amount of telephone-network information about a call. Each CINFO cell in Figure 3 provides information that is played to the caller in the corresponding PDAT cell about an error that can occur during the execution of the BOUT cell.

Figure 2: Application using CINFO cells



The first cell, ANSW, answers the call and passes the call flow to the GDAT cell. If successful, GDAT plays a message, if specified, and gathers the digits from the caller for an outdial, which is performed in this example by the BOUT cell.

If an error occurs during the execution of the BOUT, the application shown in Figure 2 passes the call flow to two successive CINFO cells. Figures 3 and 4, which present the parameter pages for the CINFO cells, show how the CINFO cell in Figure 3 retrieves the Diversion Reasons (Field type 2). The parameter page in Figure 4 retrieves the number from which the call is diverted (Field type 4).

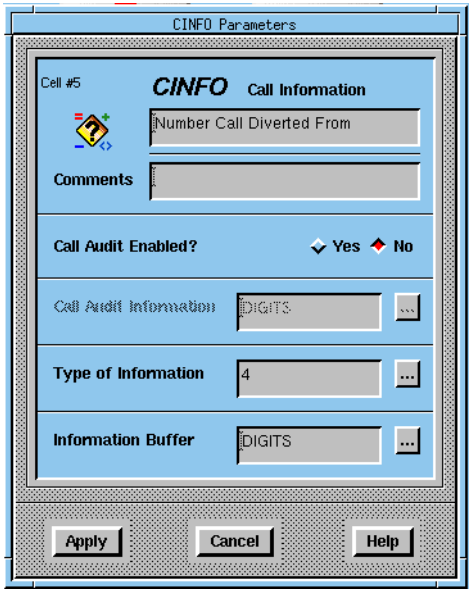
Note: The field `Type of Information` contains the code which indicates the type of data for retrieval and the buffer for storing the retrieved information. You can enter the code directly into this field, or you can store the information and then reference the buffer in the field `Type of Information` in the CINFO cell.

The available types and the corresponding codes follow.

Field	Type
0	DNIS information
1	ANI information
2	Diversion reasons
3	Calling-line category
4	Number from which the call is diverted

Figure 3: INFO parameter page retrieving diversion reason

Figure 4: INFO parameter page retrieving the number from which the call is diverted



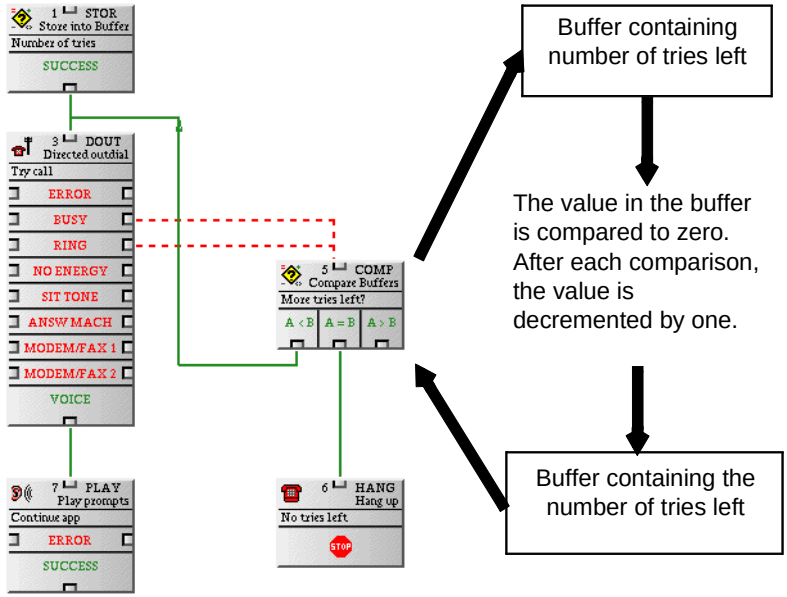
Refer to the description of the CINFO cell for additional information about the CINFO cell.

Compare (COMP)

Makes a numerical or string comparison of either the contents of one buffer or a constant value against the contents of another buffer. It branches according to the results of the comparison. COMP also provides a mechanism for limiting looping retries within an application.

Figure 5 illustrates a portion of an application that uses COMP for looping. The application has a DOUT cell to make an outgoing phone call. It also has a buffer called NUMBER OF TRIES LEFT to indicate how many additional times the application should try to make the call if the first attempt fails. The NUMBER OF TRIES LEFT buffer starts out with a value of 3. The Step Flag parameter in the COMP cell is set to decrement the buffer.

Figure 5: Using COMP cell for looping



If DOUT is unsuccessful in making the call, the application branches to COMP, which compares the NUMBER OF TRIES LEFT buffer with the constant value 0. If the buffer value is greater than the constant value, then DOUT tries making the call again. COMP decrements the value of the buffer, and the application returns to the DOUT cell. Because the application follows a set of branches forming a circular pathway, it is said to “loop” back to the DOUT cell.

The application keeps looping through the DOUT cell to try the call again until the call is answered or until there are no more tries left. If the call is not answered on the first try, the application may make up to three additional attempts because the original value of the NUMBER OF TRIES LEFT buffer was 3.

Concatenate Buffers (CONC)

Concatenates, or joins together, two character strings. After concatenation, the destination buffer contains its original contents followed by the source string.

Generate Event (EVENT)

Logs application-specific or SNMP information, or both, at arbitrary points within a call-flow as directed by the application writer.

Mathematical Operations (MATH)

Performs one of the following operations (whole number math, only) on two operands that are either buffers or constant values: add, subtract, multiply, divide, or remainder.

Store (STOR)

Puts either a value or the contents of a buffer into another buffer.

Substring Buffers (SUBS)

Copies a portion of a buffer and puts the copy into another buffer.

Call Management cells

These cell types help to manage phone calls and are generally used at the beginning or end of the call.

Answer (ANSW)

Answers a telephone call.

Call Control (CCTRL)

Enables application developers to write applications that perform call control operations without the knowledge of the command set for a particular PBX or switch. The CCTRL cell allows the application to execute one of three precoded operations and up to six user-created functions.

Adjust Gain (GAIN)

Adjusts the outgoing volume on the current channel of prompts played to the caller.

Hang Up (HANG)

Places the channel on-hook. The cleanup handler is executed after the cell is processed.

Stop Tone (STPT)

Stops a tone that was started by a TONE cell.

Start Tone (TONE)

Plays a selected call progress tone (either continuous or for a specified time) such as dial, busy, and so on, on the current channel.

Application Scheduling cells

These cell types manage the scheduling of applications. Scheduling may be done for any kind of application, including wake-up and reminder calls.

Schedule Application Delivery (DELV)

Schedules an application to run at a specified time or times in the future.

Get Schedule Event List (LDLV)

Retrieves information about a scheduled event.

Get Current Time and Date (TIME)

Retrieves the current time, date, and day of the week.

Unschedule Delivery (UDLV)

Cancels a scheduled event.

Database Management cells

The database cells manipulate data stored in the OPEN IVR information database. Additional cells are available for managing data stored in SQL databases. Refer to the “SQL Server” section in this chapter.

Check Database (CHEK)

CHEK extracts data from a specified record in an information database and makes it available to the application. It can read up to 10 buffers of data from a specific record.

Delete Records from an Information Database (DDEL)

Deletes a user-specified record from an information database if the record is found.

Insert Record into an Information Database (DINS)

Inserts a user-specified record into an informational database.

Update information Database (UPDT)

Allows data to be inserted into an information database. Up to 10 buffers of data can be inserted into the specified record.

Audio Path cells

These cell types are used for handling trunk connections to a common audio path. They can bridge callers or connect to external devices. Audio Path capability is optional functionality.

Connect Path (CONP)

Creates a connection to a common audio path.

Disconnect Path (DCNP)

Breaks the connection to the common audio path.

Execute Application cells

These cells allow you to invoke other applications from your current application. This allows you to break your applications up into smaller sub applications and create different application “modules.”

Execute Application (EXEC)

Begins the execution of another Generations application on the current channel. Once the new application is accessed, the new application takes control of the current call.

Call a Sub-Application (GSUB)

Calls a sub-application. This cell acts like the EXEC cell, except that the call flow will resume at the cell following the GSUB, when the sub-application executes a RETN cell.

Return from a Subroutine Call (RETN)

To return to the calling application from a sub-application accessed by way of the GSUB cell, use the RETN cell.

User Process Access cells

User functions enable customized code written in C or C++ programming language, to extend the range of activities performed by OPEN IVR.

Connect User Function (USER)

Invokes a user function from an application.

SQL Server cells

The SQL server cells allow you to manipulate data stored in an SQL database. SQL access is optional functionality.

SQL Command (QCMD)

The QCMD cell interfaces with a relational DBMS and allows you to use free-form SQL statements and stored procedures that are supported by a specific database. The QCMD cell either returns the number of rows in a database table or view that matches specific selection criteria, or performs a command and returns zero rows.

SQL Delete (QDEL)

Removes one or more rows from a specified database table.

SQL Insert (QINS)

Adds a row to a specific database table.

SQL Select (QSEL)

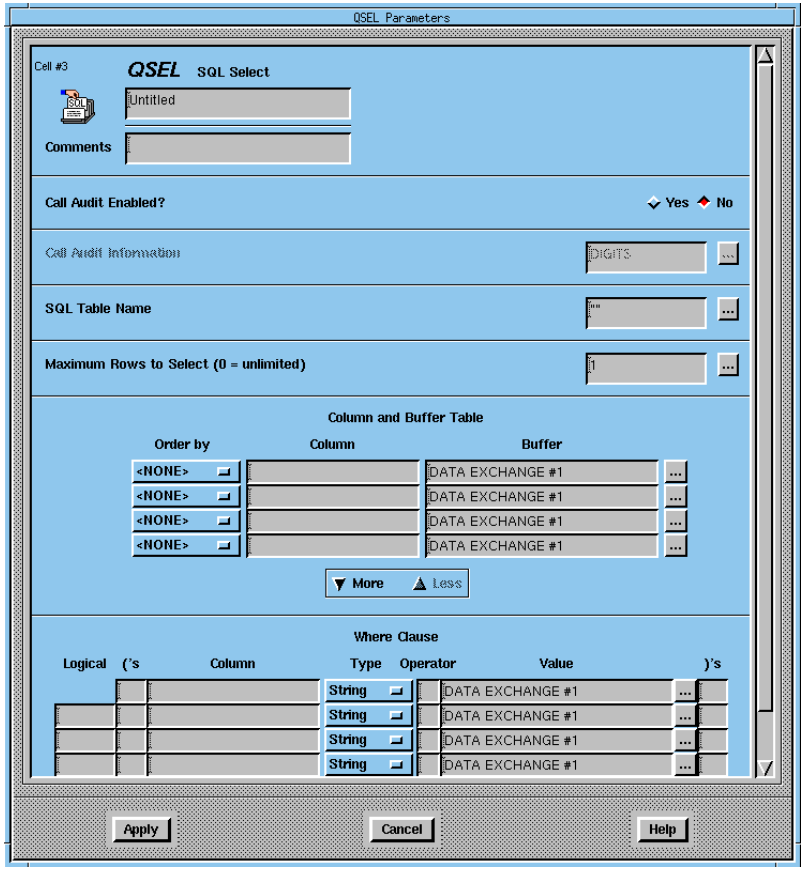
Selects rows of data from a database table or view. It returns the first row of data.

SQL Select Count (QCNT)

Returns the number of rows in a database table or view matching the specific selection criteria.

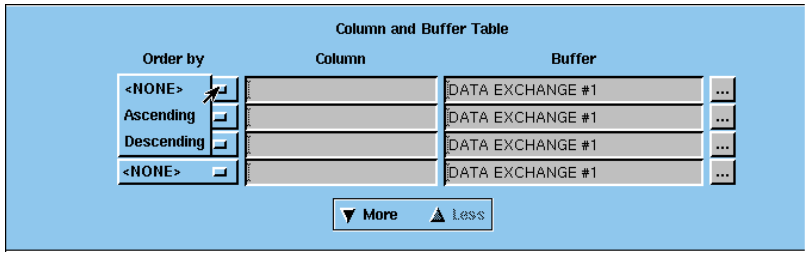
When you set up the QSEL cell, you specify the following values in the cell parameters window as shown in Figure 6.

Figure 6: QSEL parameter page



The `Order By` parameters in the Column and Buffer Table section of the Parameter Page allow you to specify the order of the rows returned by the QSEL cell, as shown in Figure 7.

Figure 7: Column and Buffer Table section



To select a sorting option, click on the desired option in the `Order By` menu. Your sorting options are `Ascending`, `Descending`, and `None`. The default value is `None`.

SQL Retrieve Row (QROW)

Retrieves one row from a set of rows selected by the QSEL cell.

SQL Update (QUPD)

Updates the values in one or more rows of a database table.

Fax cells

The fax cells allow you to send and receive faxes. Fax Capability is an optional functionality.

Receive Fax (RFAX)

Receives a fax from a caller.

Send Fax (SFAX)

Sends one or more faxes to a destination fax machine.

Speech Processing cells

The following cells allow OPEN IVR to recognize spoken responses and support multiple languages. Automatic Speech Recognition (ASR) and Text to Speech (TTS) Capabilities are optional functionalities.

Say Text (SAY)

Converts text into spoken output by text obtained from buffers and text files, and speaking it over the telephone lines to the caller.

Note: To use the SAY cell, the MRS connection must be Ethernet.

Voice Input (VINP)

Specifies the listening mode of the application (DTMF or speech recognition) and what vocabulary to recognize.

Multilingual cells

The following cell allows OPEN IVR to support multiple languages and speech recognition.

Set Language (LANG)

Sets the offset for system- and application-specific prompts, and associates that offset with a particular language. This cell also sets up vocabulary groups for speech recognition. It is used to support multilingual applications.

Host Communication cells

The following cells add host communication support. Host communication is an optional functionality.

Host Communications Abort (COMA)

Aborts or ends a transaction in progress from a host computer connected to OPEN IVR through the OPEN IVR Host Link product.

Host Communications - Input to Host (COMI)

Initiates a transaction through the OPEN IVR Host Link product and passes data to a host computer connected to OPEN IVR.

Host Communications - Output from Host (COMO)

Retrieves data from a host computer connected to OPEN IVR through the OPEN IVR Host Link product.

ADSI

ADSI allows your applications to take advantage of ADSI-compliant telephones. ADSI is an optional functionality.

Connect Session (dsCON)

Establishes a communications session with an ADSI telephone.

Data Input Forms (dsDATA)

Downloads a form containing textual prompts and an input format pattern to an ADSI telephone screen.

Disconnect Session (dsDIS)

Terminates a communications session with an ADSI telephone.

Display Information (dsINFO)

Downloads a list of ASCII text lines to an ADSI telephone.

Get Data (dsINPUT)

Decodes the ADSI-encoded string and places the alphanumeric data in a buffer.

Define Soft Keys (dsKEYS)

Defines a soft key set to be downloaded to an ADSI telephone.

Display Menu (dsMENU)

Downloads a list of menu options to an ADSI telephone.

Support Data Mode (dsMODE)

Enables you to choose between Voice and Data mode. The default mode is Voice.

Connect ADSI User Function (dsUSER)

Provides the ADSI application with the capability to access specific low-level commands supported by an ADSI phone. This is a user-written C function.

How cells are described

The description of each cell type follows the general format which follows. The following items may appear for each cell type (although not every cell has the same combination of buffers, parameters, next cells, and tables).

Buffers Used

Buffers that supply information to this cell.

Note: Buffer names are not case sensitive and can contain spaces.

Buffers Updated

Buffers that this cell type updates with new data. Buffers pass information from one cell to another. Each cell type description tells you which buffers are used or updated so you can monitor the effect your application has on the buffers in use.

Parameters

A list of all the parameters you customize when you create a cell. The parameter's name, its initial value, and a brief explanation of what it does is given. The list of parameter names and initial values are shown exactly as you see them on the parameter page when you are creating or editing an application.

Next cell

The branches for determining which cell comes after the current cell. Most cell types have more than one branch to the next cell. An explanation for each branch is given on why the application would take that branch. The list of next cells is shown exactly as you see it on the drawing board of the Application Editor.

Tables

A list of tables that you fill with information for the cell to use. These tables also appear on screen when you are using the Application Editor.

You can also access a complete list of cell attributes by clicking on the help button in a cell parameter window. Figures 8, 9, and 10 illustrate the help file for the CHEK cell, which is a typical help file for the cells in the Application Editor.

Figure 8: Page 1 of the Help File for the CHEK cell

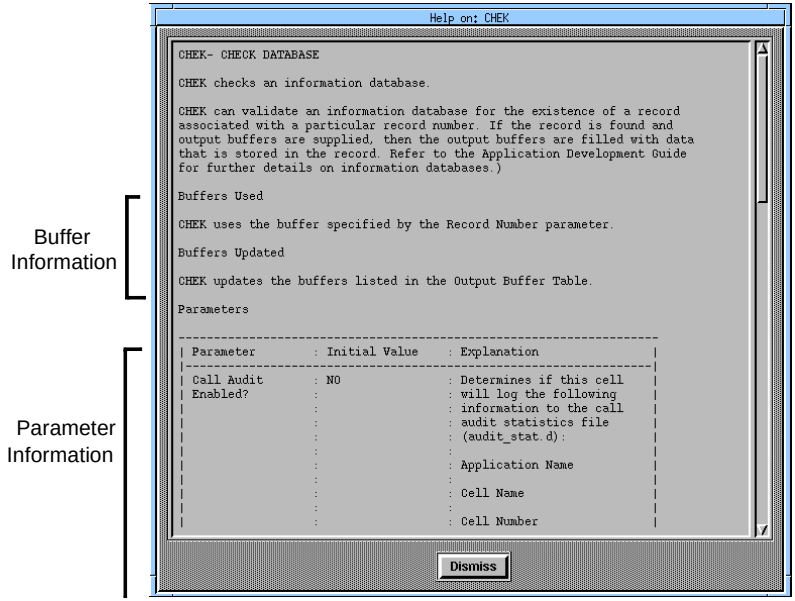

Help on: CHEK
CHEK- CHECK DATABASE
CHEK checks an information database.
CHEK can validate an information database for the existence of a record associated with a particular record number. If the record is found and output buffers are supplied, then the output buffers are filled with data that is stored in the record. Refer to the Application Development Guide for further details on information databases.)
Buffers Used
CHEK uses the buffer specified by the Record Number parameter.
Buffers Updated
CHEK updates the buffers listed in the Output Buffer Table.
Parameters
Parameter
Initial Value
Explanation
Call Audit Enabled?
NO
Determines if this cell will log the following information to the call audit statistics file (audit_stat.d):
Application Name
Cell Name
Cell Number
Dismiss
Buffer Information
Parameter Information

Figure 9: Page 2 of the Help File for the CHEK cel

Parameter Information (continued)

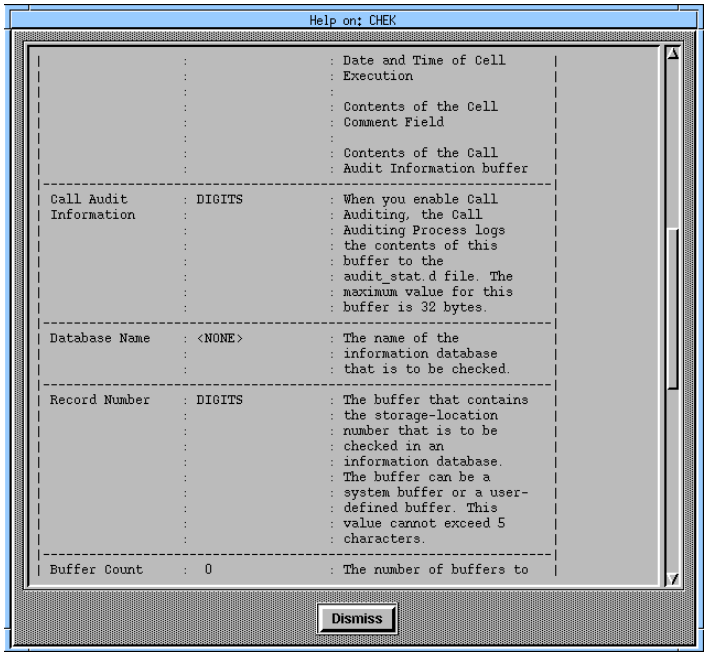
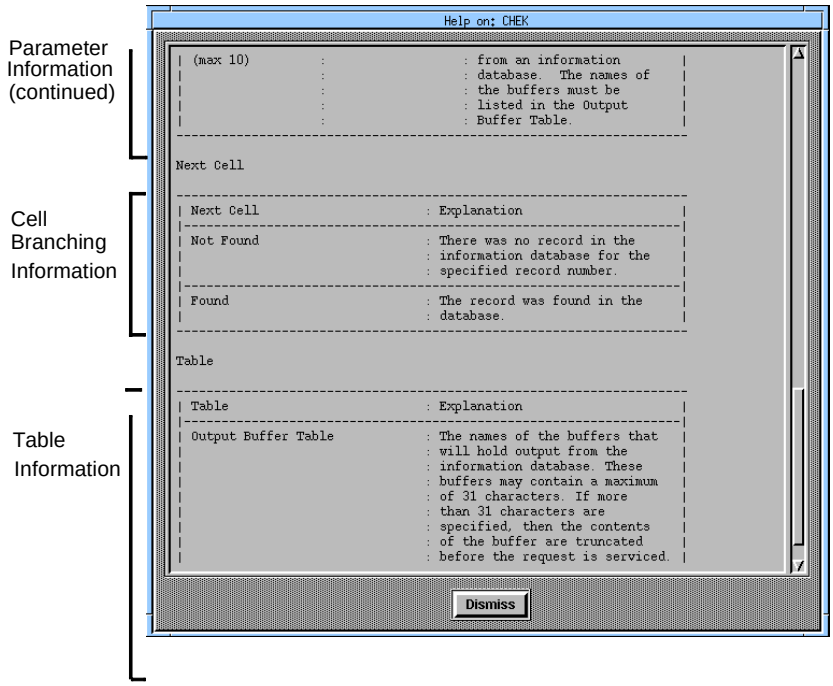

Help on: CHEK
Date and Time of Cell Execution
Contents of the Cell Comment Field
Contents of the Call Audit Information buffer
Call Audit Information
DIGITS
When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the audit_stat.d file. The maximum value for this buffer is 32 bytes.
Database Name
<NONE>
The name of the information database that is to be checked.
Record Number
DIGITS
The buffer that contains the storage-location number that is to be checked in an information database. The buffer can be a system buffer or a user-defined buffer. This value cannot exceed 5 characters.
Buffer Count
0
The number of buffers to
Dismiss

Figure 10: Page 3 of the Help File for the CHEK cell


Parameter Information (continued)
Cell Branching Information
Table Information
Help on: CHEK
| (max 10) : : from an information |
| : : database. The names of |
| : : the buffers must be |
| : : listed in the Output |
| : : Buffer Table. |
Next Cell
| Next Cell : Explanation |
| Not Found : There was no record in the |
| : information database for the |
| : specified record number. |
| Found : The record was found in the |
| : database. |
Table
| Table : Explanation |
| Output Buffer Table : The names of the buffers that |
| : will hold output from the |
| : information database. These |
| : buffers may contain a maximum |
| : of 31 characters. If more |
| : than 31 characters are |
| : specified, then the contents |
| : of the buffer are truncated |
| : before the request is serviced. |
Dismiss

Cells

AMSG - Add Current Message cell

AMSG adds a message that has been previously recorded with an RMSG (Record Message) cell to a mailbox in the application's message database; and stamps the message with the current date and time. AMSG stores the current message whose message number is in the CURRENT MESSAGE buffer. Any message that was just recorded with an RMSG cell is the current message. If a message is recorded but not added to the message database with AMSG, it is unavailable to OPEN IVR even though it is stored on the MRS. It must be stored by some other means so that OPEN IVR may have access to it at a future time.

The mailbox that stores the message must already have been created by this application or by some other application. Mailboxes are created and accessed by the MSGS cell.

A newly recorded message must be added to the message database as soon as possible because a caller may hang up at any time during a call. If an AMSG cell is the Success branch for an RMSG (Record Message) cell, the application does not end until the message is saved in the message database, even if the caller hangs up immediately after recording the message.

Buffers used

The buffer CURRENT MESSAGE lists the number of the current message.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Mailbox ID	MAILBOX ID	The buffer containing the ID of the mailbox in which the message will be stored. Can be a system buffer or a user-defined buffer. The value of this buffer cannot exceed 5 characters.

Next file

Next file	Explanation
DB Error	The message database could not be accessed because the database is not open or has been corrupted.
Invalid ID	The specified mailbox ID does not exist.
MBOX Full	There is no more room in the mailbox for the message.
Success	The message has been added to the database.

Tables

None

ANSW - Answer cell

ANSW accepts the phone call on the current channel. Calls are normally accepted immediately at the start of the call, so the ANSW cell is often the first cell in the call flow of an inbound application. In some situations, you may want to develop your application so that certain portions are executed before the telephone line is placed off hook. This would allow you to set up for the call before the call is answered.

The application is not allowed to generate tones or play prompts before the ANSW cell is executed. This feature safeguards against fraudulent use of the telephone network. There are valid situations where it may be necessary to play a tone or a prompt, or both, before executing the ANSW cell, so trunk initialization types have been provided for this purpose. For example, an application may extend ringing while it performs a database lookup. See the Release 4.0*Symposium OPEN IVR System Administration Guide* for a description of trunk initialization types.

Note: The ANSW cell cannot be used in an outbound application.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Next branch

Next branch	Explanation
Success	This is the only branch.

Tables

None

BOUT - Bridge Outdial cell

BOUT makes a new phone call for a caller who already has a call in progress on AP software. The new call is made by using DTMF tones on another channel to outdial the phone number indicated by the Phone # parameter.

> ***Note:*** In order to use the BOUT cell, the MRS must support the audio path capability.

When the BOUT cell is successful, a bridge is created to the secondary caller.

If an error occurs during outdial, the call flow takes an ERROR branch from the BOUT cell.

After outdialing, BOUT allows a specified maximum number of rings; if this maximum occurs before the called party answers, the call is considered a failure and the call flow takes the Ring branch to the next cell.

If no trunk is available for outdialing, the call flow follows the No Trunk branch to the next cell.

If a busy signal is detected, the call flow takes the Busy branch to the next cell.

The call flow follows the No Energy branch if the secondary call is answered, but no voice energy is detected.

BOUT also provides branches to different cells if the call is answered by a fax machine, modem, or answering machine. In addition, BOUT may branch to another cell if SIT tones are detected.

> ***Note 1:*** When the call flow takes either the `SIT Tone`, `Answ Mach`, `Modem/FAX 1`, `Modem/FAX 2`, or `Voice` branches, the call is considered successful.

> ***Note 2:*** You must edit the trunk type files in order to enable the FAX, MODEM, or SIT tone detection OPEN IVR features, or your application will always take the Voice branch on success. Refer to the Release 4.0 *Symposium OPEN IVR Service Console Interface Reference Manual* for additional information about editing trunk type files.

If the new call is answered, the original caller is connected to the called party and the application remains in this cell until one of the parties hangs up. If the second caller hangs up, the application resumes and branches to the next cell in the application.

BOUT supports call progress analysis through the `Audible Call Progress?` parameter, which allows the caller to hear the result of the outdial (either busy signal or ring tones which, if successful, are followed by the called party answering the telephone) as it occurs. The two possible outcomes for the call progress analysis parameter follow:

- If the parameter is set to `NO`, the outcome of the outdial is monitored and the appropriate branch taken from the BOUT cell.
- If the parameter is set to `YES`, the caller will hear the progress of the outdial.
    - If the outdial results in a busy signal, the caller will hear a busy tone.
    - If the call is successful, the caller will hear the ring tones, followed by the called party answering the telephone.

BOUT can also be used to perform an operator revert.

Buffers used

BOUT uses the buffer specified by the `Phone Number` parameter.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
BOUT_CALL _TERMINATE	<NONE>	Specifies the termination digit for the BOUT cell. If the primary caller presses this digit, the application hangs up on the secondary caller and returns the primary caller to the application.
Ring Count (0 – 31)	0	The number of rings allowed before the call is considered a failure and the application takes the Ring (no answer) branch out of the cell.
Phone Number	DIGITS	The buffer containing the phone number to be dialed. Can be a system buffer or a user-defined buffer. The contents of this buffer may not exceed 31 characters.

Next branch

Next branch	Explanation
Error	An error has occurred during outdial.
Ring	The ring count has been reached without an answer.
No Trunk	No trunk is available for making the call.
Busy	The called number is busy.
No Energy	The secondary call was answered, but no voice energy is detected.
SIT Tone	OPEN IVR detected a SIT tone during an outdial.
Answ Mach	OPEN IVR detected an answering machine during an outdial.
Modem/FAX 1	OPEN IVR detected a MODEM or FAX Type 1 tone during an outdial.
Modem/FAX 2	OPEN IVR detected a MODEM or FAX Type 2 tone during an outdial.
Voice	The call was answered; the application was suspended for the duration of the call; the called party has hung up; the application has now resumed.

Tables

None

CASE - Match a Case cell

CASE compares the contents of a buffer (selection criteria) to a set of predefined criteria (cases), and passes the control to the branch corresponding with the criteria met.

The selection criteria may be set either to match exactly one of a set of values or to fall within a range of values.

CASE is useful in applications for the following:

- alteration of functionality or prompts, or both, based on a data value such as time, date, day, or other codes set by an application
- input validation
- evaluation of return codes from a GSUB
- creation of a subroutine library which is an applet that contains multiple related subroutine sections where the desired functionality is specified by one of the parameters

  Note: There is nothing restricting you from entering a large number for the Selection Criteria and Valid Cases parameters. However, if the value exceeds 2^{31} for 32-bit architecture, or 2^{63} for 64-bit architecture, and the Comparison Type is NUMERIC, the cell will take the not Found Branch.

Although OPEN IVR does not fully support FLOAT type values, you can make use of the CASE cell with FLOATs by using the STRING type for exact matches. However, the data and case must be consistent in their use of leading and trailing zeros, and any spacing.

Buffers used

The CASE cell uses the contents of the buffer specified in the Selection Criteria parameter.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Selection Criteria	DIGITS	A buffer containing the selection criteria for the CASE. This buffer may contain 1920 characters for buffer data used in STRING type comparisons.
Comparison Type	NUMERIC	The type of comparison to be performed. The valid choices are: NUMERIC STRING
Match Criteria	EXACT	The criteria used to determine the branch to take. The valid choices are: EXACT RANGE

Parameter	Initial value	Explanation
Number of Cases (1 – 16)	0	Number of valid cases in the CASE table. Case 1 has the highest priority; case 16 has the lowest priority. The cell compares the cases in order and returns the first case to match the criteria.

Next branchx

Next branch	Explanation
Not found	The input selection could not be found in valid case table.
Success	The transaction completed successfully.

Tables

Tables	Explanation
Valid Cases	A list of all valid cases to match the selection criteria, and the next cell corresponding to each. Valid cases may be any numerical or string constant, or any buffer containing a value. The value in a buffer may contain 1920 characters for buffer data used in STRING type comparisons.

If you select the EXACT match option in the Match Criteria parameter, the application either will find the branch matching the SELECTION CRITERIA buffer contents or take the NOT FOUND branch.

If you select the RANGE match option, the application will take the appropriate case boundary branch for data either less than or equal to the SELECTION CRITERIA buffer contents. Otherwise, the application will take the NOT FOUND branch.

If you select the RANGE match option, it is important to list the cases in the Cases Table in ascending order.

In order to use CASE on STRINGs with RANGE, you must know the lexical order of the ASCII set of characters (refer to the table that follows, which shows the mapping between the decimal value of ASCII characters and the associated keyboard characters).

If two strings initially contain the same characters, but one is shorter (for example, “parameter” and “param”), the shorter string is considered less than the longer string. Also note from the lexical ordering that “ABC” is less than “abc.”

Decimal value	Keyboard character	Decimal value	Keyboard character	Decimal value	Keyboard character
9	tab	52	4	73	I
32	space	53	5	74	J
33	!	54	6	75	K
34	“	55	7	76	L
35	#	56	8	77	M
36	$	57	9	78	N
37	%	58	:	79	O
38	&	59	:	80	P
39	‘	60	<	81	Q
40	(	61	=	82	R
41	)	62	>	83	S
42	*	63	?	84	T
43	+	64	@	85	U
44	,	65	A	86	V
45	-	66	B	87	W
46	.	67	C	88	X
47	/	68	D	89	Y
48	0	69	E	90	Z
49	1	70	F	91	[
50	2	71	G	92	\
51	3	72	H	93	]

Decimal value	Keyboard character	Decimal value	Keyboard character	Decimal value	Keyboard character
94	^	105	i	116	t
95	_	106	j	117	u
96	`	107	k	118	v
97	a	108	l	119	w
98	b	109	m	120	x
99	c	110	n	121	y
100	d	111	o	122	z
101	e	112	p	123	{
102	f	113	q	124	|
103	g	114	r	125	}
104	h	115	s	126	~

Example

A typical example of usage of this cell is for determining how a call should be greeted, handled, or routed based on when the call comes in. The example involves one TIME cell and two CASE cells.

1 The TIME cell retrieves the current time, date, and day of week.

2 The first CASE cell checks the day of the week for weekday versus weekend. This can be done with 7 exact matches or 2 range matches. On the weekend, route to voice mail. On a weekday, continue.

3 The second CASE cell checks the date for special date or holiday restrictions. This is done with a number of exact match branches in the form mmddyyyy. For both the Selection Criteria and all cases, use the STRING format for comparison type. On each match, play a special holiday greeting, announce “We are closed,” and route to voice mail. If there is no match, continue.

4 The third CASE cell checks the time for what time of day it is. This is done with a number of range matching branches in the form hhmm. An example of what the branches might be and the reasons are as follows:

Time	Status	Action
0000 – 0759	Closed	Go to voice mail.
0800 – 1200	Open	Say “Good morning,” connect to sales.
1201 – 1259	Lunch	Transfer to operator.
1301 – 1700	Open	Say “Good afternoon,” connect to sales.
1701 – 2400	Closed	Go to voice mail.

Note: Use the CDAT cell if you need to convert the format of the data in the SELECTION CRITERIA buffer.

CCTRL - Call Control cell

The CCTRL cell enables application developers to write applications that perform call control without knowledge of the command set for a particular PBX or switch. The CCTRL cell allows the application to execute one of three precoded operations and up to six user-created functions. When running OPEN IVR MRS software Release 4 and greater, you can configure the MRS to perform customized call-control operations on the PBX or switch using the `Call Operation` parameter settings MACRO3-8, which are placeholders for user-defined call operations in the CCTRL cell. You can also redefine the default operations for the options DROP 2ND PARTY, CONFERENCE, and RECOVER CALLER. For more information about configuring the MRS for user-defined call operations, refer to the Release 4.0 *Symposium OPEN IVR Service Console Interface Reference Manual.*

The following default actions of the call operations DROP 2ND PARTY, CONFERENCE, and RECOVER CALLER are recommended:

- When the parameter `Call Operation` is set to DROP 2ND PARTY, the CCTRL cell hangs up the secondary call and returns the original caller to the application.
- When the parameter `Call Operation` is set to CONFERENCE, the CCTRL cell ends the secondary call by connecting the two parties together in a conference call. The two callers remain connected to the MRS until the application hangs up through a HANG cell. After the application hangs up, the callers are connected to each other as the PBX controls the call and the MRS channel is free to accept another call.
- When the parameter `Call Operation` is set to RECOVER CALLER and a secondary call is made but the called party hangs up before the application ends the secondary call, the CCTRL cell terminates the secondary call and returns the original caller to the application.

The `Call Operation` parameter settings `MACRO3-8` can be renamed in the file `xae.lng` to reflect a specific user-defined call operation. This would allow the user to tailor which options from the Call Operation pulldown menu are displayed. Refer to the Release 4.0 *Symposium OPEN IVR Application Development Guide* for more information about editing the file `xae.lng`. The following table illustrates the CCTRL cell call operation names and the associated `xae.lng` files.

CCTRL Cell Call Operation	xae.lng File Token Name
Recover Caller	CCTRL_FEATURE00
Conference	CCTRL_FEATURE01
Drop 2ND Party	CCTRL_FEATURE02
MACRO3	CCTRL_FEATURE03
MACRO4	CCTRL_FEATURE04
MACRO5	CCTRL_FEATURE05
MACRO6	CCTRL_FEATURE06
MACRO7	CCTRL_FEATURE07
MACRO8	CCTRL_FEATURE08

Note: CCTRL cell functionality is only supported by OPEN IVR MRS software Release 4 or greater. If you run an application containing a CCTRL cell on a system with an earlier version of the MRS software, the system logs an error message to the transaction log and the CCTRL cell takes the error branch.

Buffers used

Buffer supplied in the parameter `Optional Data`.

Buffers updated

Buffer supplied in the parameter `Failure Code`.

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if the CCTRL cell logs the following information to the call audit statistics file, `audit_stat.d`:
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the file `audit_stat.d`. The maximum value for this buffer is 32 bytes.

Call Operation	RECOVER CALLER	Determines which PBX or switch function should be executed. The choices are as follows:
		`Recover Caller`
		`Conference`
		`Drop 2nd Party`
		`Macro1`
		`Macro2`
		`Macro3`
		`Macro4`
		`Macro5`
		`Macro6`

Optional Data	No initial value	The buffer or value used to pass optional data to the MRS for use by the selected call operation.

Parameter	Initial Value	Explanation
Failure Code	CELL STATUS	The buffer in which the error code associated with a failed call operation is stored. Possible values are as follows: **00** - Success **01** - Success **08** - Access denied. The outdialing process is aborted and the trunk state remains unchanged. **10** - Network presence is not detected. For example, no dial tone is detected. The trunk state is idle.

Next branchl

Next branch	Explanation
Error	The selected call operation failed. This branch is also taken if you use the CCTRL cell with a pre-4.0 version of MRS software.
Success	The selected call operation is successful.

Tables

None

CDAT - Convert Data cell

CDAT converts data from one format to another by allowing the user to specify the input format, output format, source buffer, and destination buffer. The options are selected from a pop-up menu under the header Conversion Type, with the following choices available:

- DATE
- TIME
- DATE & TIME
- CURRENCY

CDAT is especially useful for converting data gathered from other sources, such as a database, into a format compatible with other cells. CDAT also provides the facility for extracting a piece of data, such as the month from the complete date, for use.

The CDAT cell presents the following fields:

Field	Explanation
Input Format	The format in which the data is provided.
Output Format	The desired format.
Source Buffer	The name of the buffer in which the data is located.
Destination Buffer	The name of the buffer into which the converted data should be placed.

If the source buffer contains the number 0102, the input format is mmdd, the output format is mmm-dd, and the conversion type is Date, the number will be converted to jan-02.

If the input format or output format contains characters other than those specified under the following valid format sections, CDAT takes the INVALID FORMAT branch. You should note the allowable input formats described here.

Allowable formats for the date follow:

Valid month format	
m	1–12, Use this format to specify output only, unless there are separators.
mm	01–12, Use this format to specify input and output, respectively. When specifying in the Date & Time format, use lowercase mm to refer to minutes (01 through 59).
MM	01–12, Use this format to specify input and output, respectively. When specifying the Date & Time format, use uppercase MM to refer to months (01 through 12).
mmm	jan, feb, mar, apr, may, jun, jul, aug, sep, oct, nov, dec
mmmm	january, february, march, april, may, june, july, august, september, october, november, december
Mmm	Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec
MMM	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC
Mmmm	January, February, March, April, May, June, July, August, September, October, November, December
MMMM	JANUARY, FEBRUARY, MARCH, APRIL, MAY, JUNE, JULY, AUGUST, SEPTEMBER, OCTOBER, NOVEMBER, DECEMBER

Valid day format		
d	1–31	output only, unless there are separators
dd	01–31	input, output

CDAT does not verify that a particular date actually exists for the specified month (for example, February 31 is allowed). Therefore, you should check this elsewhere in your application.

Valid year format		
yyyy	0000–9999	input, output

Note: OPEN IVR software Release 4.0 or greater are year 2000 compliant.You can update existing applications in order to update the year format from yy to yyyy in either of the following ways:

- Execute the following command:
  xae -update *application_name*.vpf
- Load your application into the Application Editor; the date format is updated. When you save the application, the update is reflected in the saved file. The date is updated.

Allowable separators in the date format

- space
- comma
- dash
- forward-slash

Allowable formats for the time follow:

Valid hour format			
h	1–12	12-hour time	output only, unless there are separators
hh	01–12	12-hour time	input, output
H	0–23	24-hour time	output only, unless there are separators
HH	00–23	24-hour time	input, output

Valid minute format		
mm	00–59	input, output

Valid second format		
ss	00–59	input, output

Valid AM or PM (required for 12-hour time only)		
xx	am, pm	input, output
XX	AM, PM	input, output
x.x.	a.m., p.m.	input, output
X.X.	A.M., P.M.	input, output

Valid currency formats	
####	Whole portion of currency without thousands separator. This format must consist of four pound signs.
#,###	Whole portion of currency with thousands separator. You can insert any character (except the pound sign) between the first and second pound sign as the thousands separator. This format must consist of four pound signs.
.00	Any character appearing before the first zero is taken as the desired decimal separator. The number of zeros indicates the desired decimal precision. When specified in the input format, CDAT will round the input string to the desired number of decimal places.
()	Enclosing the number in parentheses indicates a negative value.
-	A negative sign (dash) anywhere in the string indicates a negative value.

You can use all other characters, including currency symbols such as a leading or trailing dollar sign, in format strings. If specified in the input, CDAT will check them against the input string. If specified in the output, CDAT will place them in the output string at the desired location.

If you use either the negative sign (dash) or parentheses as placeholders in the input and output format, CDAT will only include them in the output string if the string is actually a negative. If you do not include negative placeholders, CDAT will interpret the output string as the absolute value of the input string and the sign will be lost.

Allowable separators in the time format

- space
- comma
- colon

Date & time format

See individual sections on date and time for format information.

Buffers used

CDAT uses the buffers specified by the parameters for Input Format, Output Format, Source Buffer, and Destination Buffer.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the audit_stat.d file. The maximum value for this buffer is 32 bytes.

Conversion Type	DATE	The format for the number. Valid conversion types are:
		`Date`
		`Time`
		`Date and Time`
		`Currency`

Input Format	“mm/dd/yyyy”	Buffer or value. The format of the data in the source buffer.
Output Format	“mmddyyyy”	Buffer or value. The format of the data in the destination buffer.
Source Buffer	DATE	The buffer containing the data to be converted. The data must be valid for the conversion type. The buffer can be a system buffer or a user-defined buffer.

Parameter	Initial value	Explanation
Destination Buffer	DATE	The buffer containing the result of the conversion of the data in the source buffer. The data must be valid for the conversion type. The buffer can be a system buffer or a user-defined buffer.

Next branch

Next branch	Explanation
Inv Format	The format is invalid for the type.
Error	The value is out of range for the format specified.
Success	The data has been converted to the format specified.

CEND - Continuation Outdial End cell

CEND is used in conjunction with a COUT (Continuation Outdial) cell, which initiates a secondary telephone call on the current channel. At some point in an application after COUT has successfully initiated a secondary phone call, CEND ends the secondary call and returns to the primary call. You can choose the options DROP 2ND PARTY, CONFERENCE, or RECOVER CALLER in the parameter `Hook-Flash Type`. You can redefine the call operations listed in the parameter `Hook-Flash Type` by editing the trunk type file on the MRS. Refer to the Release 4.0 *Symposium IVR Service Console Interface Reference Manual* for additional information about editing the trunk type file.

You can choose one of the following options in the parameter `Hook-Flash Type` to specify the operation by which the CEND cell ends a secondary call:

- CEND can simply hang up the secondary call and then return the application to the original caller. This is done if the Hook-Flash Type is DROP 2ND PARTY. In versions of MRS software earlier than Release 4, two Hook flashes are performed.
- CEND can end the secondary call by connecting the two parties together in a conference call. Note that the two callers remain connected to the MRS until the application hangs up. After that, the callers remain connected to each other (the PBX controls the call) and the MRS channel is freed to accept another call. This is done if the Hook-Flash Type is CONFERENCE. In versions of MRS software earlier than Release 4, one hook flash is performed by the CEND cell.
- If a secondary call has been made but the called party hangs up before the application can end the secondary call, a CEND cell can then terminate the secondary call and return the application to the original caller. This is done if the Hook-Flash Type is RECOVER CALLER. In versions of MRS software earlier than Release 4, zero hook flashes are performed. A CEND cell that has the RECOVER CALLER Hook-Flash Type should be used only as the HANGUP branch of a COUT cell.

Note: Depending on your switch, you may need to perform a call control operation when the RING or BUSY branch is taken from the COUT cell. You can accomplish this with the CCTRL cell. Refer to the section about the CCTRL cell for additional information.

Do not use a CEND cell from the BUSY or RING NO ANSWER branch of the COUT cell. If you use a CEND cell in this way, then the cleanup handler does not function. Instead, use a CCTRL cell to perform any special call control required by your switch. Refer to the chapter in the Release 4.0 *Symposium OPEN IVR Application Development Guide* that discusses the IVR Developer for an example of an outdialing application using the COUT and CEND cells.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameter	Initial value	Explanation

Hook Flash Type	RECOVER CALLER	How should the secondary call be ended? The choices are
		`Recover Caller`
		`Conference`
		`Drop 2nd Party`

Next branch

Next branch	Explanation
Error	The secondary phone call does not exist or could not be ended.
Success	The secondary call has been ended and the application has returned to the original caller.

Tables

None

CHEK- Check Database cell

CHEK checks an information database.

CHEK can validate an information database for the existence of a record associated with a particular record number. If the record is found and output buffers are supplied, then the output buffers are filled with data that is stored in the record. Refer to the Release 4.0 *Symposium OPEN IVR Application Development Guide* for further details on information databases.

Buffers used

CHEK uses the buffer specified by the `Record Number` parameter.

Buffers updated

CHEK updates the buffers listed in the Output Buffer Table.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Database Name	<NONE>	The name of the information database that is to be checked.

Parameter	Initial value	Explanation
Record Number	DIGITS	The buffer that contains the storage-location number that is to be checked in an information database. The buffer can be a system buffer or a user-defined buffer. This value cannot exceed 5 characters.
Buffer Count (max 10)	0	The number of buffers to hold output information from an information database. The names of the buffers must be listed in the Output Buffer Table.

Next branch

Next branch	Explanation
Not Found	There was no record in the information database for the specified record number.
Found	The record was found in the database.

Table

Table	Explanation
Output Buffer Table	The names of the buffers that will hold output from the information database. These buffers may contain a maximum of 31 characters. If more than 31 characters are specified, then the contents of the buffer are truncated before the request is serviced.

CINFO - Call Information cell

The CINFO cell retrieves certain types of information from the telephone network during either the initiation of an incoming call, or the execution of an outgoing call through the DOUT, BOUT, or COUT cell.

IVR AP software stores the telephone-network information until either the end of the call or the completion of the outdial, at which time the telephone-network information from the outdial overwrites the data stored during the initiation of the incoming call. The CINFO cell retrieves the telephone-network data by indicating the type of data for retrieval and a buffer in which to store this information.

> ***Note 1:*** The field `Type of Information` of the CINFO cell contains the category of telephone-network data for retrieval (ANI digits, DNIS digits, Call Diversion Reasons, or Calling Line Category). The information available for retrieval is dependent on the telephone network.
>
> ***Note 2:*** If the information type requested by the CINFO cell does not match the data stored internally, the call flow follows the NO DATA branch from the CINFO cell.

Buffers used

None

Buffers updated

CINFO updates data in the buffer specified in the field `Information Buffer`.

Refer to the Introduction in the Release 4.0 *Symposium OPEN IVR Cell Catalog* for an example of an application that uses the CINFO cell.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell logs the following information to the Call Audit statistics file, `audit_stat.d`:
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Type of Information (Buffer/Value)	0	Code that indicates the type of data for retrieval from the stored telephone-network information. The available types and the corresponding codes follow:
		Code Type
		`0 DNIS information (Digits)`
		`1 ANI information (Digits)`
		`2 Diversion Reasons (Digits)`
		`3 Calling Line Category (Digits)`
		`4 Number From Which Call Is Diverted (Digits)`
		The definitions for the Diversion Reason codes and the Calling Line Category codes follow this table.

Parameter	Initial value	Explanation
Information Buffer	DIGITS	Buffer in which CINFO stores the information collected in the field “Type of Information.” This buffer can retrieve up to 1920 characters of data.

Diversion reasons

In each of these cases, the call is released and the diversion reason code placed in the buffer INFORMATION BUFFER.

1 The outgoing call is immediately diverted to another PBX.

2 The outgoing call is immediately diverted to another PBX.

3 The outgoing call is diverted to another PBX on detection of a ring no answer.

4 The incoming call is immediately diverted.

5 The incoming call is diverted on detection of a busy tone.

6 The incoming call is diverted on detection of a ring no answer.

7 The outgoing call is immediately diverted to another party on the same PBX.

8 The outgoing call is diverted to another party on the same PBX on detection of a busy tone.

9 The outgoing call is diverted to another party on the same PBX on detection of a ring no answer.

Calling line categories

1 No calling/called line category information supplied

2 Ordinary extension

3 10 pps decadic (pulse dialing) extension

4 Digital Access Signaling System No. 2

5 Public Switched Telephone Network

6 Signaling System Multifrequency No. 5

7 Operator

8 Network

9 Party is involved in a conference

Next branch

Next branch	Explanation
No Data	CINFO could not retrieve the requested data type. One of three conditions might cause this: 1 The telephone network accessed does not provide this information. 2 A problem occurred during the initiation of the call to prevent the data retrieval. 3 An invalid type is entered in the field `Type of Information`. Note that if the type of information requested by the CINFO cell does not match the data stored internally, the call flow takes this branch.
Success	CINFO successfully retrieved and stored the requested data in the selected buffer.

Tables

None

CMSG - Copy Message cell

CMSG copies a message from the MRS on which it was recorded. The copy of the message then becomes available to applications running on the other MRS.

You must give CMSG the number of the destination MRSs. Consult your system administrator.

> ***Note:*** If you plan to use a CMSG with two MRS', you must use Ethernet connections for the MRSs.

CMSG copies the message whose message number is in the CURRENT MESSAGE buffer. If the message has just been recorded, it is already the current message. If the message was previously recorded and stored in a mailbox, then MSGS (Get Message List) must be used to access the mailbox and GMSG (Get a Message) must be used to retrieve the message to make it available for CMSG to copy.

When the new copy of the message is created on the destination MRS, it is assigned its own message number. This destination message number is stored in the CURRENT MESSAGE buffer; the message at the destination MRS thus becomes the current message. The number of the original message is lost unless the application previously saved it in another buffer.

If the Delete After Copy parameter is set to Yes, the message is deleted from the source MRS after it is copied to the destination MRS.

> ***Note:*** The PLF backup/restore utility may also be used to copy prompts to and from the MRS.

Buffers used

The buffer CURRENT MESSAGE lists the source message number.

Buffers updated

The buffer CURRENT MESSAGE lists the destination message number.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Destination MRS	1	The number of the MRS to which the message is copied. This can be a buffer or a value.
Delete After Copy (Y/N)	N	Asks whether the message should be deleted from the source MRS after it is copied to the destination MRS.

Next branch

Next branch	Explanation
Error	The message could not be copied.
Success	The message has been copied.

Tables

None

COMA - Host Communications Abort cell

The COMA cell is used to abort a transaction, if in progress, from a host computer connected to OPEN IVR by way of the OPEN IVR Host Link products (for example, the IBM 3270 Host Link).

Through the Host Link products, the host computer is running a terminal-based application. The OPEN IVR Host Link is substituted for the human operator. The Host Link, and not the human operator, provides information to the running host application.

The COMA cell frees all memory, buffer tables, and session resources associated with application data retrieval. Use a COMA cell in the cleanup branch of the START cell in the event that a caller hangs up in the middle of a transaction.

Refer to the Release 4.0 *Symposium OPEN IVR SNA Host Communications Guide* for further information.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Next branch

Next branch	Explanation
Error	An error has occurred; or no transaction in progress.
Success	The transaction completed successfully.

Tables

None

COMI - Host Communications - Input To Host cell

The COMI cell is used to initiate a host transaction as well as to pass data to a host computer connected to OPEN IVR and to initiate a transaction by way of the OPEN IVR Host Link products (for example, the IBM 3270 Host Link).

Through the Host Link products, the host computer is running a terminal-based application. The OPEN IVR Host Link is substituted for the human operator. The Host Link, and not the human operator, provides information to the running host application.

The COMI cell handles all the issues related to sending data to the host computer, as well as providing the interface for data from the OPEN IVR application.

The COMI cell uses a script that determines the flow of the host application's screens along with the screen fields that are of interest. This script must be created separately using a text editor and consists of screen and action templates. The COMI cell also uses a set of buffers to provide input to screens, and may need to be used more than once in order to provide all the data necessary to complete one transaction. The "More Input" flag is used to postpone the execution of the transaction until all input data has been gathered.

> ***Note:*** Refer to the Host Link's development guide for information on how to write a script.

Upon receipt of all input buffers, the execution of a COMI cell consists of a host transaction. A transaction is a script that, if followed from the beginning to end, defines actions that must be performed. Several screens may be traversed to obtain the desired information. The last step in the transaction is to bring the host program back to a known starting point.

If the script does not specify reset and logout actions, and the mode is set to manual, the communications session is left on the last screen of the virtual terminal session. The next use of a COMI cell in this application will start its script as if it were resuming from that point in the last transaction. This feature allows the OPEN IVR application to make decisions affecting the host transaction flow, and eliminates the need to start each transaction all the way back at the login screen.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Action Template	“ “	Name of the action template
More Input?	No	Will more input buffers be required before the transaction should begin?
Timeout	75	Timeout for host response: value 0 – 75 seconds
# Input Buffers	0	Value 0 – 10

Next branch

Next branch	Explanation
Error	An error has occurred; possible cause: unexpected screen found or field not found.
Success	Input data received or the transaction began successfully, or both.

Tables

Table	Explanation
Input Buffer Table	Lists the name of each input buffer or value. These buffers may contain a maximum of 31 characters. If more than 31 characters are specified, then the contents of the buffer are truncated before the request is serviced.

COMO - Host Communications - Output From Host cell

The COMO cell is used to retrieve data from a host computer connected to OPEN IVR by way of the OPEN IVR Host Link products (for example, the IBM 3270 Host Link).

Through the Host Link products, the host computer is running a terminal-based application. The OPEN IVR Host Link is substituted for the human operator. The Host Link, and not the human operator, provides information to the running host program, takes information contained on the screens, and stores this information for future retrieval through the COMO cell.

The COMO cell provides the interface to the OPEN IVR application for the host data retrieved by the script initiated by the COMI cell when it provides a set of buffers to hold output data retrieved from the screens.

> ***Note:*** Refer to the Host Link's development guide for information on how to write a script.

If the blocking mode is set to "y", then the COMO cell waits for the transaction initiated by the COMI cell to complete. It then returns up to 10 buffers of information to the OPEN IVR application, along with a status code indicating the success of the transaction.

If the blocking mode is set to "n" and the transaction is not complete, the COMO gets a status code indicating "Not Ready" and executes the Next Cell "Not Ready" branch without retrieving any data.

If the transaction has completed, up to 10 buffers plus a status code indicating the success of the transaction is then returned to the application. The OPEN IVR Host Link retains all information from the last transaction. The next time, the COMO cell will retrieve the next logical sequential data. Each retrieval is simple memory access and thus allows the application designer to efficiently plan host transaction sequences.

The COMO cell retrieves information from a transaction previously initiated through a COMI cell, and only waits for completion if necessary. The asynchronous capabilities provided by this pair of cells can be used to the application designer's advantage by allowing interaction with a caller through other cells between these two cells while the transaction is in progress.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
# Output Buffers	0	Value 0 – 10
Blocking (Y/N)	Y	Indicates whether the COMO cell should wait for a transaction to complete before it transitions to the next cell.

Next branch

Next branch	Explanation
Error	An error has occurred; possible cause: unexpected screen found or field not found.
Timeout	The timeout value (specified in COMI) has been exceeded.
Not Ready	The transaction has not completed yet. Only valid if blocking is set to N.
End of Data	The transaction completed successfully.
More Data	The transaction completed successfully, but there is more data to be retrieved through another COMO cell.

Table

Table	Explanation
Output Buffer Table	Lists the name of each output buffer.

COMP - Compare cell

COMP makes a comparison of the contents of a buffer against either the contents of another buffer or a constant value. The results of the comparison are used to determine the next cell. There are two types of comparisons possible: numerical (for example, comparing two numbers), and string-based.

Using the COMP cell allows you to increment or decrement by one (1) the contents of Buffer A after the comparison by using the `Step Flag` parameter. This feature is only useful with numeric comparisons. For a string comparison, this feature would be meaningless; consequently, the `Step Flag` is ignored for string comparisons.

> ***Note:*** For numeric comparisons, the combined value of Buffer A and Buffer B cannot be greater than the largest integer for your system.

Buffers used

COMP uses Buffer A and Buffer B.

Buffers updated

Buffer A is updated if the `Step Flag` parameter is used to decrement or increment its contents and the `Type of Comparison` parameter is set to Numeric.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file `(audit_stat.d)`:
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Buffer A	DIGITS	A buffer name. Can be a system buffer or a user-defined buffer. This buffer can contain a maximum of 1920 characters.
Buffer B	0	A buffer (either a system buffer or a user-defined buffer) or a constant value will be compared with Buffer A. If you specify a constant value in a string comparison, enclose it in quotation marks. If this buffer is defined as a constant value, then this buffer can contain a maximum of 31 characters. For string comparisons, this buffer can contain up to 1920 characters.
Step Flag	NONE	In a numeric comparison, the flag identifies whether Buffer A should be increased by 1, decreased by 1, or left unchanged after the comparison. This is ignored in a string comparison.
Type of Comparison	NUMERIC	The type of comparison to be performed: numeric or string.

Next branch

Next branch	Explanation
A < B	A is less than B.
A = B	A is equal to B.
A > B	A is greater than B.

Tables

None

Examples of comparisons

In a string comparison, the result is based on alphanumeric order: 1–10, A–Z. The following table illustrates string comparisons performed by the COMP cell.

Contents of Buffer A	Contents of buffer B	Next cell
“A”	“C”	A < B
1111	21	A>B
“1ZZ”	“ZZ”	A < B
“MAINE”	“MAINE”	A = B
“STATUS”	“ORDER”	A > B
“ABBOT”	“ABBO”	B < A

Suppose that you want to perform a numeric or string comparison of the contents of the DIGITS buffer against the contents of the NUMBER OF MESSAGES buffer.

BUFFER A = DIGITS BUFFER

BUFFER B = NUMBER OF MESSAGES BUFFER

The following table lists the results.

Conditional	Next cell
IF DIGITS < NUMBER OF MESSAGE buffers	A < B
IF DIGITS = NUMBER OF MESSAGE buffers	A = B
IF DIGITS > NUMBER OF MESSAGE buffers	A > B

You can also compare the contents of a buffer against a constant value, as illustrated in the following table.

BUFFER A = DIGITS

BUFFER B = 1t

Conditional	Next cell
IF DIGITS < 1	A < B
IF DIGITS = 1	A = B
IF DIGITS > 1	A > B

By using the Step Flag parameter in numeric comparisons, you can include a COMP cell in your application to perform a looping function. To use this feature, you would set the value of the parameter to `Increment` or `Decrement`. Refer to the Introduction in the Cell Catalog for an illustration of a portion of an application that uses COMP for looping.

CONC - Concatenate buffers cell

CONC concatenates (joins) two character strings. After concatenation, the destination buffer contains its original contents followed by the source string. The buffer identified by the Destination String Length parameter contains the number of characters in the destination buffer following concatenation.

Buffers Used

CONC uses the buffers specified by the Source, Destination Buffer, and Destination String Length parameters.

Buffers Updated

CONC updates the buffers specified by the Destination Buffer and Destination String Length parameters.

Parameters

Parameter	Initial Value	Explanation
Call Audit Enabled?	No	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`): Application Name Cell Name Cell Number Date and Time of Cell Execution Contents of the Cell Comment Field Contents of the Call Audit Information buffer

Parameter	Initial Value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Source (Buffer/Value)	DIGITS	The source string, or the buffer that contains the source string. If the source is a string rather than a buffer, this value cannot contain more than 31 characters and must be enclosed in quotation marks. If the source string is a buffer, then the value cannot contain more than 1920 characters.
Destination Buffer	DIGITS	The buffer to which the source string is appended. After concatenation, the value contained in this buffer cannot contain more than 1920 characters.
Destination String Length	LENGTH	The length of the string in the Destination Buffer after concatenation. If the error branch is taken, the Destination String Length buffer contains a “0.”

Next Cell

Next Cell	Explanation
Fail	The combined length of the two strings is too long for the destination buffer. Each buffer can store a string up to 1920 characters in length.
Success	Concatenation is successful.

Tables

None

Example

Suppose the source is the string “2509393” and the destination is a buffer containing the string 508. After the CONC cell has concatenated the two strings, the destination buffer contains the string 5082509393. Note that the quotation marks around the source string are not copied to the destination buffer.

CONP - Connect Path cell

CONP connects the application's MRS channel to the common audio path specified by the PATH buffer.

> ***Note 1:*** The path must be set as a common audio path number prior to executing this cell. The valid range is 0 to 99. In addition, the range must be within the value specified in the "# of Reserved Audio Paths" field of the MRS page in the System Configuration Management screen.
>
> ***Note 2:*** In order to use the CONP cell, the MRS must support the audio path capability.

CONP uses the common audio path to bridge the original channel to an optional digital switch on the MRS/AP, MRS/Tower, and MRS Rack.

There are three choices for the path type:

- If the path type is LISTEN path, the caller on the current channel will be able to hear sounds carried by the common audio path but will not be able to speak to other callers.
- If the path type is SPEAK, the caller on the current channel will be able to speak to others but will not be able to listen to sounds on the common audio path.
- If the path type is BOTH, the caller will be able to speak and listen.

The connection lasts the length of time specified by the `Duration` parameter. The duration can be from 1 to 14 seconds or continuous. If the duration is continuous, the connection can be ended by a DCNP (Disconnect Path) cell.

The CONP cell also has an option to break the connection when DTMF is detected. If this option is in use, then the party that presses a DTMF digit during the connection is disconnected. If the parameter `DTMF Break` is set to `Yes`, then the CONP cell does not exit until a DTMF key is pressed by the caller.

Buffers used

The buffer `Path` provides the common audio path to which the current channel is to be connected. This value must be within the range of 0 to 99.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file **`(audit_stat.d)`**:
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Duration Continuous?	NO	If set to “yes” and the parameter `DTMF Break` is set to “no”, then the connection can be ended by a DCNP cell.
Duration	1	Time, in seconds, for the connection to last.

Parameter	Initial value	Explanation
Path Type	BOTH	Will the caller be able to listen to sounds (LISTEN/SPEAK/BOTH) on the common audio path without being able to speak to others, be able to speak without being able to listen, or be able to speak and listen?
DTMF Break (Y/N)	YES	Should callers connected to the path be disconnected if a DTMF tone is detected? **Note:** This parameter is not supported on SCbus systems.

Next branch

Next branch	Explanation
In Use	The maximum number of connections has already been made to the specified common audio path.
Success	The connection has been made successfully.

Tables

None

COUT - Continuation Outdial cell

If the parameter `Hookflash on start?` is set to `Yes`, then the COUT cell puts a caller on hold and makes a secondary call by performing a hook-flash outdial to the phone number specified by the `Phone Number` parameter. This cell provides several possible branches, as described below.

If the MRS cannot dial the phone number, the application branches to the Error next cell. If the MRS does succeed in dialing, it allows a specified maximum number of rings to occur. If this maximum occurs before the called party answers, the call is considered not to have been answered and the application branches to the Ring next cell. If, instead, a busy signal is detected, the application branches to the Busy next cell.

> ***Note:*** If the application does go to the Error, Ring, or Busy branch, it takes the original caller off hold and continues normally by issuing a hook-flash when the parameter `Hookflash on error?` is set to `Yes`. Depending on your switch, you may need to perform a special call control operation when the ring branch is taken from the COUT cell. You can accomplish this with the CCTRL cell.

When the secondary call is answered but no voice energy is detected, COUT branches to `No Energy Detect`. This might or might not be considered an error if the call is answered by a person who chooses not to speak. It might not be considered an error if the call is made to a paging terminal, since the beeps from a paging terminal are not detected by the MRS as energy. It is up to the application developer to decide whether to treat the `No Energy Detect` branch as an error branch.

On the other hand, if the secondary call is answered and voice energy is detected, the application branches to the `Voice` branch. The application continues; the original caller remains on hold; and the called party is the one who hears prompts, presses telephone keys, or performs any of the other activities that may be required by the application.

COUT provides additional branches specific for calls answered by a FAX machine, MODEM, or Answering Machine; and when SIT tones are detected. To use the Fax/Modem error branch, in the trunk type file set the `usefax` parameter to 1.

The application can end the secondary call in one of three ways:

- A CEND (Continuation Outdial End) cell can hang up the secondary call. In this case, the original caller is taken off hold.
- A CEND cell can join the two callers together in a conference call.
- The called party (that is, the person who received the secondary call) may hang up before the application can end the secondary call. In this case, the application takes the `Hangup` branch of the COUT cell.

COUT is the only cell type in which a `Hangup` branch can be specified. A `Hangup` branch is quite different from a `Next Cell`. The application will go directly to the `Hangup` branch any time the recipient of the secondary call hangs up on the call, no matter which cell is being executed at the moment.

> ***Note:*** COUT can be used only if the MRS is connected to a switch that supports hook-flash transfer.

An application with a COUT cell cannot run on a channel configured as a DID2 trunk. See the Release 4.0 *Symposium OPEN IVR System Administration Guide* for an explanation of trunk initialization types.

Buffers used

COUT uses the buffer specified by the `Phone Number` parameter.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Ring Count (0 – 31)	0	How many rings to allow before branching to the Ring next cell. If set to 0, the application waits a maximum of 31 rings before it branches to Ring no answer cell.
Phone Number	DIGITS	The buffer containing the phone number to be dialed. The value of this buffer cannot exceed 31 characters.
Hookflash on start?	Yes	Determines if the cell should issue a hookflash before the outdial when it is executed.
Hookflash on error?	No	Determines if the cell should issue a hookflash on error.

Next branch

Next branch	Explanation
Error	An error was encountered during the process of dialing the phone number. (This branch must not lead to a CEND cell.)
Ring	The ring count has been reached without an answer. (This branch must not lead to a CEND cell.)
No Energy	The secondary call was answered, but no voice energy is detected.
Busy	The called number is busy. (This branch must not lead to a CEND cell.)
Hangup	The secondary call was answered and the application branched to the Voice next cell of the COUT cell with the secondary call in progress. However, the called party hung up before the application could end the secondary call. The application stops whatever it is doing and goes directly to this Hangup branch. (This branch must lead to a CEND/Recover.)
SIT Tone	OPEN IVR detected a SIT tone during an outdial.
Answ Mach	OPEN IVR detected an answering machine during an outdial.
Modem/Fax1	OPEN IVR detected a MODEM or Fax of Type 1.
Modem/Fax2	OPEN IVR detected a MODEM or Fax of Type 2.
Voice	The secondary call was answered and voice energy is detected. The secondary call is in progress.

Tables

None

DCNP - Disconnect Path cell

DCNP disconnects the current channel from the common audio path. Connections between a channel and a common audio path are made with the CONP (Connect Path) cell type. The DCNP cell is needed only if the CONP cell specified a continuous duration for the path connection.

Buffers used

The buffer PATH provides the common audio path to which the channel is connected. The valid range is a value between 0 and 99.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Next branch

Next branch	Explanation
Error	The path is invalid or the channel was not already connected to the path.
Success	The path has been disconnected.

Tables

None

DDEL- Delete Information Database Records cell

DDEL allows the user to delete a record from an information database. The record specified by the user is deleted from the information database if it is found.

Refer to the Release 4.0 *Symposium OPEN IVR Application Development Guide* for information about deleting records from an information database.

Buffers used

DDEL uses the buffer specified by the record number parameter.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	No	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameter	Initial value	Explanation
Database Name	<NONE>	The name of the information database from which records have to be deleted.
Record Number	DIGITS	The buffer that contains the storage location number that has to be deleted from the information database. The buffer can be a system buffer or a user-defined buffer. The value of this buffer cannot exceed 5 characters.

Next branch

Next branch	Explanation
Error	The record number could not be deleted.
Not Found	There was no record in the information database for the specified record number.
Success	The record was successfully deleted.

Tables

None

DELV - Schedule a Delivery Application cell

DELV is used by one application to schedule another application to be started automatically at some time in the future.

> ***Note:*** The EXEC and GSUB cell types, in contrast, allow one application to pass control to another immediately on the same call.

DELV is most commonly used to originate outgoing phone calls for services such as message delivery, pager access, telemarketing, wake-up calls, and reminder calls. The scheduled application is called an event.

Applications scheduled by the DELV cell are run on output trunks only, and typically have a DOUT (Directed Outdial) cell early in the call flow to make an outgoing phone call. When the call is answered, the scheduled application can play prompts to the called party, collect digits from the called party, or perform any of the other standard application activities.

The DELV cell simply makes a request to queue the application to be started at some time in the future. If the request is accepted, DELV takes the Success branch to the next cell. Other than the buffers that are passed from the scheduling application to the scheduled application, there is no link between the two applications. The scheduled application begins at the appropriate time, often long after the scheduling application has finished.

The DELV cell contains several options and features to increase the flexibility of this very useful cell. Since a typical use of the DELV cell is to have a call placed at some future time for the purpose of playing a message, there are parameters for specifying the outdial number, delivery time, and message number.

Since OPEN IVR may have a long schedule of future events, it returns a unique identifier to the DELV cell whenever an application is scheduled and stores it in the buffer specified by the Delivery Event ID parameter.

It is often useful to pass additional pieces of information to a scheduled application; for example, another message or a second phone number. For this purpose, DELV passes the system buffers, DATA EXCHANGE #s 1–5, to the scheduled application. What they contain and how their contents are to be interpreted is entirely up to you. DELV itself does not store any information in these buffers, so the application must put information into them before the DELV cell is executed.

Note: You can use the `devnt` and `sched` tools in conjunction with the DELV cell.

`devnt` displays the contents of the `csc_events` file, which resides in the `sys_files` directory. This file contains a list of all the times, telephone numbers, and event IDs scheduled to run for the applications.

`sched` provides the same functionality as the DELV, UDLV, and LDLV cells but with a command line interface.

Refer to the section about Tools in the Release 4.0 *Symposium OPEN IVR System Administration Guide* for more information.

Rescheduling

You may want to schedule an application more than once, so there are parameters that aid in rescheduling the application. There are two basic reasons for rescheduling:

- Some applications, such as those that deliver wake-up calls, are intended to be run daily at a prescribed time. For this reason, an automatic rescheduling feature may be selected using the `Time Type` parameter.
- An outdial may be unsuccessful because, for example, the line is busy or the call is not answered. You may want to try again. For this reason, the DOUT cell in the delivery application may have error branches leading to a DELV cell so that the application can reschedule itself, a procedure called manual rescheduling. There are parameters called Delivery Interval (for the length of time until the next scheduled delivery) and Delivery Attempts that the delivered application can use in rescheduling itself. The application typically decrements the Delivery Attempts parameter each time the application is run. When the number of delivery attempts reaches zero, the application no longer reschedules itself.

A more detailed discussion of the individual parameters of the DELV cell follows.

Application Name

Specifies either the name of the application to be scheduled or a buffer containing the name. The scheduled application must be loaded and started by delivery time. The application can optionally be assigned to specific output trunks. This pool of trunks is used to run the application. See the Release 4.0 *Symposium OPEN IVR System Administration Guide* for instructions on loading applications and for information on output trunks.

Outdial Number Buffer

Specifies a buffer containing the phone number that the scheduled application will call. This buffer is passed to the scheduled application.

> ***Note:*** You must specify both the Application Name and the Outdial Number for DELV to schedule properly.

Time Type

Determines the manner in which the schedule is calculated.

- If the Time Type is ABSOLUTE, the application is run at a specific date and time. DELV uses the Delivery Time parameter to calculate delivery time.
- If the Time Type is RELATIVE, the application is run a certain length of time from the moment the DELV cell is executed. DELV uses the Delivery Interval parameter to calculate delivery time.
- If the Time Type is RESCHEDULE, the application automatically is run at intervals specified by the Reschedule Interval parameter, starting with the date and time specified by the Delivery Time parameter. DELV uses the Delivery Time and Reschedule Interval parameters to calculate delivery time.

Delivery Time

Selects the buffer that specifies the time when the scheduled application is to be run. The format for the delivery time is 12 digits, as follows: mmddyyyyhhmm (2 digits for month, 2 digits for day, 4 digits for year, 2 digits for hour, and 2 digits for minutes – 12 digits altogether in a 24-hour format).

Delivery Interval

Specifies the length of time, in minutes, until the next scheduled delivery of the application; the length of time cannot exceed 9999999 minutes. This is used by the DELV cell only when the `Delivery Time` parameter is set to RELATIVE. For the other Delivery Time types, the DELV cell itself does not use this parameter; however, if the `Delivery Interval` parameter specifies a buffer, that buffer can be used by other cells in the application.

Delivery Attempts

Is passed to the scheduled application and placed in the DELIVERY ATTEMPTS buffer. This parameter specifies information that can be used by the scheduled application to determine whether it should reschedule itself in case the call is not successful. It is important to note that this field is not used by the DELV cell itself, nor does it automatically cause the application to be rescheduled. Typically, the scheduled application will have cells that use the `Delivery Interval` and `Delivery Attempts` parameters to determine whether it should reschedule itself. For example, a scheduled application could use a COMP cell to determine whether it should take a branch to a DELV cell.

Delivery Handle Buffer

Can specify a message number to be passed to the scheduled application and placed in the CURRENT MESSAGE buffer. The scheduled application could use a PMSG (Play Message) cell to play the message to the called party.

Delivery Event ID

Receives the identifier for the scheduled event. If you later decide to unschedule this event with a UDLV (Unschedule Delivery) cell, you must use this ID number. (See the description of the UDLV cell type.) It may be helpful for the application to use a PDAT (Play Prompts with Data) cell to play the delivery event ID to the caller so the caller can make a note of it.

Reschedule Interval

Used by the DELV cell only when the Time Type is RESCHEDULE, it tells OPEN IVR how many days to allow between automatically rescheduled deliveries. Automatically rescheduled events will occur at the Delivery Time every Reschedule Interval number of days. It is possible to reschedule events automatically up to seven days apart.

Buffers used

DELV uses the buffers specified by the following parameters:

Buffer	Explanation
OUTDIAL NUMBER BUFFER	Passed to the scheduled application and stored in its DIGITS buffer. The value of this buffer cannot exceed 31 characters.
DELIVERY TIME	Passed to the scheduled application and stored in its DELIVERY TIME buffer. The value of this buffer cannot exceed 12 characters.
DELIVERY INTERVAL	Passed to the scheduled application and stored in its DELIVERY INTERVAL buffer. The value of this buffer cannot exceed 9999999.
DELIVERY ATTEMPTS	Passed to the scheduled application and stored in its DELIVERY ATTEMPTS buffer. The value of this buffer cannot exceed 9999999.
DELIVERY HANDLE	Passed to the scheduled application and stored in its CURRENT MESSAGE buffer. The value of this buffer cannot exceed 31 characters.

DELV also uses the following buffers: DATA EXCHANGE #s 1–5. All five are passed to the scheduled application. The value of these buffers cannot exceed 31 characters.

Buffers updated

DELV updates the buffer specified by the `Delivery Event ID` parameter.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Application Name	“ ”	The name of the application (may be stored in a Buffer or entered as a Value) to be scheduled. You can specify the actual name of the application, between quotation marks, or a buffer that contains the name of the application.
Outdial Number Buffer	DIGITS	The buffer containing the number to be outdialed by the scheduled application. This buffer is passed to the scheduled application as the DIGITS buffer. The value of this buffer cannot exceed 31 characters.

Parameter	Initial value	Explanation
Time Type	ABSOLUTE	Should the application be scheduled for one delivery at a specific date and time (ABSOLUTE), should it be scheduled for one delivery a certain length of time from the present (RELATIVE), or should it be scheduled for repeated delivery at specified intervals (RESCHEDULE)?
Delivery Time	DELIVERY TIME	The buffer that stores the delivery date and time. This buffer is passed to the scheduled application as the DELIVERY TIME buffer.
Delivery Interval	DELIVERY INTERVAL	The length of time, in minutes (maximum 9999999), between execution of the DELV cell and execution of the application (may be stored in a Buffer or entered as a Value). Required only if the Time Type is RELATIVE. This parameter is passed to the scheduled application and stored in the DELIVERY INTERVAL buffer.
Reschedule Interval	1	The time, in days, between each scheduled delivery. The value of this parameter can be 1–7. Required only if the Time Type is RESCHEDULE.
Delivery Attempts	DELIVERY ATTEMPTS	The maximum number of delivery attempts to make. The DELV cell does not use this information directly; it is passed to the scheduled application and stored in the DELIVERY ATTEMPTS buffer.
Delivery Handle	CURRENT MESSAGE	A buffer containing a message number to be passed to the scheduled application and stored in the CURRENT MESSAGE buffer.
Delivery Event ID	DELIVERY EVENT ID	The buffer that is updated with the delivery event ID number.

Next branch

Next branch	Explanation
Fail	The application could not be scheduled.
Success	The application has been scheduled.

Tables

None

An example of scheduling a call

Example 1 documents the call flow of an application called Scheduler that allows a caller to schedule the wake-up application for automatic daily delivery at a specified time. Example 2 documents the call flow of an application called Wake-up that performs an outdial and then plays wake-up prompts to the recipient of the call. Scheduler is the scheduling application and Wake-up is the scheduled application.

Example 1: Call flow for the application, Scheduler

Cell	Explanation
Cell 1	An ANSW (Answer Call) cell answers the phone call.
Cell 2	A PLAY (Play Prompts) cell plays introductory prompts to the caller.
Cell 3	A GDAT (Play Prompts and Get Data) cell asks the caller to enter the phone number that is to receive the wake-up call. The caller enters the number by pressing telephone keys.
Cell 4	Another GDAT (Play Prompts and Get Data) cell asks the caller to enter the date and time when the wake-up call is to be delivered.
Cell 5	A PDAT (Play Prompts with Data) cell plays the phone number back to the caller for confirmation.
Cell 6	Another PDAT cell plays the date back to the caller for confirmation.

Cell	Explanation
Cell 7	This (Play Menu and Get Data) cell gives the caller three choices: a. Keep the phone number and time as they are and schedule the call. If the caller makes this choice, the application branches to Cell 9. b. Reenter the phone number and time. If the caller makes this choice, the application returns to Cell 3. c. Quit the application without scheduling the wake-up call. If the caller makes this choice, the application branches to Cell 8.
Cell 8	A HANG (Hang Up) cell tells the caller the wake-up call has not been scheduled, then says good-bye and hangs up. The application ends.
Cell 9	A STOR (Store) cell puts the value 3 into the DELIVERY ATTEMPTS buffer, which is passed to the scheduled application for use in rescheduling itself, if necessary.
Cell 10	A DELV (Schedule a Delivery Application) cell, then schedules the Wake-up application for daily delivery to the specified phone number at the specified time.
Cell 11	A HANG cell, tells the caller that the wake-up call has been scheduled, says good-bye, and hangs up. The application ends.

Example 2: Call flow for the scheduled application, Wake-up

When this application begins, it already has some values in the DIGITS and DELIVERY ATTEMPTS buffers. At the moment that Wake-up was scheduled by Scheduler, the existing values of some parameters in Scheduler were passed to Wake-up, as follows:

From Scheduler	To Wake-up
Outdial Number Buffer parameter	DIGITS buffer
Delivery Attempts parameter	DELIVERY ATTEMPTS buffer

Other parameters were passed and stored, but because they are not used by Wake-up, they are not listed above or shown on the call flow.

The call flow is as follows:

Cell	Explanation
Cell 1	The Wake-up application begins with a DOUT (Directed Outdial) cell, which makes an outgoing phone call to the phone number in the Digits buffer. If the call is answered, Cell 2 is next. If the call is not successful because the line is busy, the call is not answered, or an error has occurred, Cell 3 is next.
Cell 2	The call is successful, so a HANG (Hang Up) cell plays the wake-up prompt or prompts to the recipient of the wake-up call. It then says good-bye and hangs up the call. The application ends.
Cell 3	The call is not successful, so the application must determine whether to reschedule itself. This cell, a COMP (Compare) cell, compares the value in the Delivery Attempts buffer to the value 0. If Delivery Attempts is greater than 0, then COMP branches to Cell 5. If Delivery Attempts is not greater than 0, then COMP branches to Cell 4. In either case, COMP subtracts 1 from the value in the Delivery Attempts buffer before branching to the next cell so that the application will not reschedule itself more than three times.
Cell 4	The application is not going to reschedule itself. This cell, a HANG (Hang Up) cell, ends the application. Even though no phone call has been made, a HANG cell is needed to end the application.

Cell	Explanation
Cell 5	The application is going to reschedule itself. This cell, a DELV (Schedule a Delivery Application) cell, schedules the application to be run again in 5 minutes. The current contents of the Digits buffer and the Delivery Attempts buffer will be available to Wake-up the next time it is run.
Cell 6	A HANG (Hang Up) cell, ends the application.

START cell - Start or Default cell

The START cell is the first cell in any application; it is automatically displayed on the cell palette by the Application Editor. The START cell allows the developer to set parameter default values for the rest of the application. For example, the START cell parameter *Termination Digit* allows the user to define a termination digit for all GDAT cells in the application.

> **ATTENTION**
>
> The START cell is also referred to as the DEFAULT cell (or DFLT) because of its use in setting application-wide default values.

Buffers used

None.

Buffers updated

None.

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial Value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Message Database	NONE	Indicates the name of the database in which AP software stores messages left by callers.
Pause Digit	6	Determines which digit halts the recording or playback process temporarily.
Pause Prompt	65 “You have paused recording. To resume, press...”	Determines which prompt is played after the user presses the Pause Digit.
Resume Digit	7	Determines which digit causes the application to resume recording or playback. If you include a pause digit, you must choose a resume digit the caller needs to press in order to resume recording or playback.
Resume Prompt	115 “Resume recording at the tone.”	Determines which prompt is played after the user presses the Resume Digit.
Abort Digit	NONE	Determines which digit causes the application to stop recording a prompt or a message without saving the recording.
Abort Prompt	117 “Recording has been aborted. The message will not be saved.”	Determines which prompt is played after the user presses the Abort Digit.

Parameter	Initial Value	Explanation
Termination Digit	#	Sets the telephone key the caller can press to finish recording a prompt or a message.
Skip Ahead Digit	NONE	Determines which digit causes the application to skip ahead within the message or prompt. The length of the skip is set in the *Skip Ahead/Back Track Time* parameter.
Back Track Digit	NONE	Determines which digit causes the application to back track within the message or prompt. The length of the skip is set in the *Skip Ahead/Back Track* Time parameter.
Skip to End Digit	NONE	Determines which digit causes the application to back track within the message or prompt.
Back to Beginning Digit	NONE	Determines which digit causes the application to skip back to the beginning of the message or prompt.
Speedup Digit	NONE	Determines which digit fast forwards playing the message/prompt. Callers can press this digit several times while they listen to a message/prompt until the end of t he message/prompt is reached.
Slowdown Digit	NONE	Determines which digit slows down playing the message/prompt. Callers can do this several times while they listen to a message/prompt until the end of the message prompt is reached.
Get Data Termination	*	The key(s) the caller can press to terminate data input. This sets the default termination digit for all GDAT cells in the application.

Parameter	Initial Value	Explanation
Maximum Pause Time (sec)	15	Determines the maximum length of time in seconds that the caller can pause using the Pause Digit.
Skip Ahead/Back Track Time (sec)	2	Determines the length of the skip is made in the Skip Ahead Digit and Back Track Digit Parameters.
Pause Timeout Action	ABORT	Determines the action taken when the speaker pauses longer than the time set in Maximum Pause Time. The choices are abort, or terminate. Abort stops the recording; the recording is not saved and it cannot be added to the message database. Terminate stops the recording; the recording is saved and can be added to the message database. A pause timeout action must be set for the following cell types if the pause option is used: RECP (Record Prompt), RMSG (Record Message)
Interdigit Timeout (sec)	5	Determines the maximum amount of time that can elapse between the ending of the prompt and the caller pressing the first DTMF digit. A value of 0 indicates there is no time limit. If speech recognition is enabled, the value for this parameter also specifies the amount of time to wait for a speech-recognizer resource.
Minimum Voice Duration (millisec)	200	Enables speech confirmation, an option for MENU cells. The Minimum Voice Duration parameter in the Default Cell sets the minimum valid duration of speech that can be accepted for positive confirmation. The value for the parameter can range from 50 to 750 in increments of 50.
SQL DBMS Type	NONE	Sets the DBMS type of the SQL database being used.

Parameter	Initial Value	Explanation
SQL Database Name	NONE	Identifies the name of the SQL database.
SQL Maximum Server Count	1	Sets the number of SQL sessions that are connected to the server you choose. During application development, use the default value of 1. As the value is increased, the load on the system and the concurrency of the database are also increased.
User Name	nortel	This field identifies a user name with access to the SQL database. Refer to your third party database package for information on defining user names.
Password		This field contains an encrypted password that AP software uses to access the SQL database.
Host Name	NONE	Identifies the node name of the system that contains the SQL database that resides on the network. You must include the IP address for this node in the file name `/etc/hosts`.

Note 1: The SQL fields in the START Cell parameter page work together to specify a set of Generic Data Server (GDS) processes to which your OPEN IVR applications can communicate. Refer to the *Symposium OPEN IVR SQL Server User Guide* for more information about configuring these parameters.

Note 2: When you choose command digits (that is, the Termination Digit or Abort Digit), use the 5 and 7 keys with caution because they are often false: that is, certain frequencies commonly found in speech recordings may be incorrectly interpreted as the DTMF digits 5 and 7.

Next branch

Next branch	Explanation
Cleanup	The cell takes this branch whenever a hang up occurs. This branch specifies the last operations the application performs before the application exits.
Success	The default values are successfully set.

Tables

None

DIAL - Dial Digits cell

DIAL dials a series of DTMF digits on the current channel while a call is already in progress. This cell type does not outdial, but it can be used to dial digits to an external device such as a paging terminal.

Buffers used

DIAL uses the buffer specified by the Phone # parameter.

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Info	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Phone #	DIGITS	The buffer that contains the phone number to be dialed. Can be a system buffer or a user-defined buffer. The contents of this buffer cannot exceed 31 characters.

Next branch

Next branch	Explanation
Error	The digits could not be dialed.
Success	The digits were dialed.

Tables

None

DINS - Insert Records Into An Information Database cell

DINS allows the user to insert a record into an OPEN IVR information database.

Buffers used

DINS uses the buffer specified by the `Record Number` parameter.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Database Name	<NONE>	The name of the information database into which a record has to be inserted.

Parameter	Initial value	Explanation
Record Number	DIGITS	The buffer that contains the storage location number that has to be inserted into the information database. The buffer can be a system buffer or a user-defined buffer. The contents of this buffer cannot exceed 5 characters.

Next branch

Next branch	Explanation
Error	The record number could not be inserted.
Record Exists	The record number already exists.
Success	The insertion of the record was successful.

Tables

None

DMSG - Delete Message cell

DMSG deletes a message from the MRS on which it has been stored.

DMSG operates on the CURRENT MESSAGE buffer. If the message has just been recorded, it is already in the CURRENT MESSAGE buffer. If the message was previously recorded and stored in a mailbox, then MSGS (Get Message List) must be used to access the mailbox and GMSG (Get a Message) must be used to retrieve the message to make it available for DMSG to delete.

You can also include the DMSG cell as part of the cleanup handler branch in your application. The caller does not need to be on the line for a DMSG to execute properly.

Buffers used

The buffer CURRENT MESSAGE lists the number of the message to be deleted.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Next branch

Next branch	Explanation
No Delete	The message could not be deleted or the message does not exist or the current message buffer is empty.
Success	This branch is taken when there is no vsn to delete, or the vsn is successfully deleted.

Tables

None

DOUT - Directed Outdial cell

DOUT makes an outgoing telephone call on the current channel. Since DOUT places a call on the current channel, this cell cannot be used in applications that answer incoming calls. It is typically used for message delivery applications that have been previously set up by the DELV cell.

> ***Note:*** DOUT requires the use of an output trunk. See the Release 4.0 *Symposium OPEN IVR System Administration Guide* for a description of output trunks.

After checking for dial tone, the MRS tries to dial the number. If it cannot, then the application branches to the Error next cell. If the MRS does succeed in dialing, it allows a specified maximum number of rings to occur. If this maximum occurs before the called party answers, the call is considered not to have been answered and the application branches to the `Ring` next cell. If a busy signal is detected, the application branches to the `Busy` next cell.

Another branch from the DOUT cell is `No Energy Detect`. The application will take this branch if the call has been answered but no voice energy is detected. This might or might not be considered an error if the call is answered by a person who chooses not to speak. It might not be considered an error if the call is made to a paging terminal, since the beeps from a paging terminal are not detected by the MRS as energy. It is up to the application developer to decide whether to treat the `No Energy Detect` branch as an error branch.

DOUT also provides branches to different cells if the call is answered by a fax machine, modem, or answering machine. In addition, DOUT may branch to another cell if SIT tones are detected. To use the Fax/Modem error branch, in the trunk type file set the `usefax` parameter to 1.

If the call is answered and voice energy is detected, then the application branches to the `Answer` next cell.

> ***Note:*** DOUT has a parameter called `Ring Count`. Within the United States, `Ring Count` specifies the maximum number of rings. Outside the United States, `Ring Count` specifies the maximum number of tone bursts, which is twice the number of rings.

Buffers used

DOUT uses the buffer specified by the `Phone Number` parameter.

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Ring Count (0 – 31)	0	How many rings to allow before branching to the Ring next cell.
Phone Number	DIGITS	The buffer that contains the phone number to be dialed. Can be a system buffer or a user-defined buffer. The contents of this buffer cannot exceed 31 characters.

Next branch

Next branch	Explanation
Error	An error was encountered during the process of dialing the phone number.
Busy	The called number is busy.
Ring	The ring count has been reached without an answer.
No Energy	The secondary call was answered, but no voice energy was detected.
SIT Tone	OPEN IVR detected a SIT tone during an outdial. The exact tone is indicated in the STATUS buffer.
Ans Mach	OPEN IVR detected an answering machine during an outdial.
Modem/Fax 1	OPEN IVR detected a MODEM or Fax Type 1 tone during an outdial.
Modem/Fax 2	OPEN IVR detected a MODEM or Fax Type 2 tone during an outdial.
Voice	The call has been answered and voice energy has been detected.

Tables

None

dsCON - Connect Session cell

The dsCON cell establishes a communications session with an ADSI telephone. You must execute this cell in the call flow before any other OPEN IVR ADSI cell can send ADSI parameters to the display telephone. After execution, the cell returns a status indicating whether the connection is successful. There are additional cells for setting up the functionality of a feature to be downloaded.

Note 1: Place this cell early in a call flow to verify that the caller is using an ADSI telephone. Based on the outcome, you can set a flag to alter the application flow before more ADSI cells attempt execution.

Note 2: If execution of dsCON fails, all other ADSI cells immediately take the `Not ADSI` branch. You can, therefore, include these cells anywhere in your call flow, since they do not affect the non-ADSI caller.

Note 3: Like other ADSI functions, you must set up a dsUSER cell containing the actual download script.

Buffers used

None

Buffers updated

The dsCON cell updates the buffer specified in the `Hardware Configuration` and the `CPE ID Buffer` parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell logs the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Hardware Configuration	RESULTS	Buffer which stores Hardware Configuration Data. This information is in the format *xxyyz*, where: *xx* is the screen width, in number of characters *yy* is the screen height, in number of vertical lines *z* is the number of soft keys available on the keypad
CPE ID Buffer	DATA EXCHANGE	A four-digit numeric ID for the ADSI phone, supplied by the hardware vendor. The dsCON cell automatically fills in this buffer.

Parameter	Initial value	Explanation
Connect for Feature Download	No	If you set the flag to “YES,” AP software downloads information to a phone that is intended to be stored on the phone and available without calling up an IVR system. For instance, users can specify Feature Download in order to download a menu of predefined directory entries, such as phone numbers of local businesses. As another example, users can download a script that enables them to maintain personal address books on the phone.
Name Of Service	DATA EXCHANGE	If you specify “YES” as the value for the parameter `Connect For Feature Download`, then an 18-character name of the service provider is provided.
FDN	DATA EXCHANGE	An FDN (Feature Download Number) is a four-byte binary code that identifies the feature to download into the ADSI phone.
Security Code	DATA EXCHANGE	A four-byte binary code that, along with the FDN, uniquely defines the ADSI feature for a specified service provider to download into the ADSI phone.
Version Number	DATA EXCHANGE	A one-byte binary code with a range of valid values from *x*(00) to *x*(FF), which identifies the version of the FDN to be downloaded.

Next branch

Next branch	Description
Not ADSI	Telephone is not ADSI compliant.
Success	Successful connection to an ADSI telephone.

Tables

None

dsDATA - Data Input Forms cell

The dsDATA cell downloads a form containing textual prompts and one or more input format patterns to an ADSI telephone screen. The application performs all data gathering interaction on the Communications Page. This process allows the application to later redisplay the Information page unaltered, if the `Popup Behavior` parameter is set to `YES`.

The dsDATA cell allows you to create an application that displays textual prompts directing the caller to input data. On the active line, the application can display a formatted string consisting of an "*" to represent each digit requested, plus, optionally, some formatting characters.

> ***Note:*** When the ADSI phone is in numeric mode, it returns standard DTMF. When it is in alphanumeric mode, it returns a string of encoded DTMF that represents the ASCII values. The phone, however, does not return these alphanumeric values. To implement this functionality, the application must call either a dsINPUT cell, which decodes the ADSI-encoded DTMF and places the alphanumeric data in a buffer, or a User function written to translate this encoded DTMF into ASCII. See the Bellcore ADSI specification for more details.

Any character other than "*****" is considered a formatting character. This convention allows the application to visually represent formatted data, such as social security numbers, dates, monetary amounts, and so on, by embedding characters between the digits. It also allows the application to display prompting words either in front of or behind the data.

Each "*****" is replaced by a digit as it is entered by the caller on the telephone keypad, or keyboard, if so equipped. The input cursor automatically skips over all formatting characters. The application can set the cursor to enter variable-length data from the right side of the format string. In that case, each successive digit scrolls all previously entered digits to the left, creating a space for the newly entered digit.

During data entry, the caller can perform editing functions. The caller can clear incorrectly entered digits by pressing the CLEAR soft key and reenter the digits from the beginning. Alternatively, the caller can successively delete the most recently entered digits by pressing the BACKSPACE soft key and reenter only that portion of the digit string.

The caller can press the ACCEPT soft key when satisfied with the display of the digits entered. This process sends the digits to the application and restores the display of the Information page, if the `Popup Behavior` parameter is set to `YES`. Depending on the design, the application can automatically append an optional termination key to the digit string when it is sent.

Note 1: To give the caller the illusion of filling out a form, one line at a time, you can place multiple dsDATA cells in succession in your application, with each cell containing the same Form Lines but a different active Input Line. As the application accepts each line of input, replace each Form Line with the input data value.

Note 2: dsDATA accepts input from only one line on the screen at a time.

Note 3: ADSI accepts input from only one line on the screen at a time.

The ADSI phone returns data that is collected by other cells in your application, typically a subsequent GDAT cell.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled	NO	Determines if this cell logs the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Popup Behavior?	YES	Determines if dsDATA clears the Information page before overlaying the ADSI screen with the input form. By default, when the caller presses the SEND key, the input form disappears. The information page is displayed in its state before the overlay Popped up. See the Note at the end of this section.
Split Display Lines	NO	Determines whether and how you split the display line. By default, the first 20 characters of the display are shown in the primary column; the remaining characters are displayed in the secondary column. If you specify “YES” as the value for this parameter, then you must specify and control the place to split the display line.

Parameter	Initial value	Explanation
Column Delimiter	DATA EXCHANGE	Buffer or value of a single character used in the display line to indicate the point where you want the line to split. ***Note:*** If you specify a value of "YES" in the parameter `Split Display Lines`, then you must specify a value for the parameter `Column Delimiter`. Otherwise, the first 20 characters are displayed in column 1; the remaining characters are displayed in column 2.
Form Lines Count	1	Buffer or value. Determines the number of lines in the Input Form Table.
Input Line 1–4	1	Determines the input line. The line number of the form line designated to actively accept input from the caller. The valid line number range is from 1 to 4. The ADSI screen allows only *one* active line at a time.

Input Direction	LEFT-TO-RIGHT	Field that designates the direction from which digits are entered. Choices are:
		`Left-to-Right Justified`
		`Right Justified`

Text Format	Left Justified	An option menu that provides formatting direction to information on the ADSI screen. The options are:
		`Left Justified`
		`Right Justified`
		`Centered`
		`Indented`

Parameter	Initial value	Explanation
Enable Wrap?	No	A switch that specifies that the text shown on an ADSI screen extends either to the maximum width allowed (requiring the caller to use the scroll bar to read the entire string) or only to the width of the screen with text beyond that limit appearing on the next line.
AlphaNumeric Input?	NO	Determines if the caller can enter alphanumeric characters from the screen. This capability is hardware dependent. ***Note 1:*** To retrieve either alphanumeric or DTMF data entered during the execution of this cell, a dsINPUT cell must immediately follow in the call flow and the value of this parameter must be the same in both cells. ***Note 2:*** For DTMF only, a GDAT cell can retrieve the data.
Secure Input	NO	Determines if the input is obscured, for security reasons, while it is entered.
Input Termination Key	NONE	Key value that is automatically appended to the entered digits to signify a variable length string. Choices are: {1-9, A, B, C, D, #, *}
Soft Key Set	“A”, “B”, “C”	A comma-separated set of Soft Keys for association with the input form. The set defines which keys are used and in what order. It can contain up to eight IDs. You can use the special IDs A, B, and C to indicate the predefined Accept, Backspace, and Clear keys, respectively. The special ID 1 is the NULL key.

Parameter	Initial value	Explanation
ACCEPT Key Short Label (7)	“Accept”	Buffer or value. Label for the “A” Soft Key, which sends the entered data to the application.
ACCEPT Key Long Label (18)	“Accept & Send Data”	
Backspace Key Short Label (7)	“BkSpace”	Buffer or value. Label for the “B” Soft Key, which allows the caller to delete and reenter the last digit(s) entered.
Backspace Key Long Label (18)	“Delete 1 Character”	
CLEAR Key Short Label (7)	“Clear”	Buffer or value. Label for the “C” Soft Key, which clears all input to allow the caller to start again.
CLEAR Key Long Label (18)	“RESTART DATA ENTRY”	

Note: The appearance of the pop-up display differs, depending on the model and vendor of the ADSI telephone. The Philips Phone popup covers the bottom four lines of the display. The Nortel ADSI Telephone popup covers the entire screen.

Next branch

Next branch	Description
Error	Error in ADSI transmission.
Not ADSI	ADSI Session is not yet established.
Success	Successful form transmission to an ADSI display telephone.

Tables

Table	Description
Input Form	A list of up to four buffers or values that create a form containing titles, prompts, and formats of data for the caller to enter. An input format string contains at least one "*****" to represent each digit requested. Other characters are used to format the data, such as "****/**/****" for a date, "Amount: **$****.****" for money. This list can contain more than 32 characters of data but no more than 40 because ADSI displays support only 40 characters.

dsDIS - Disconnect Session cell

The dsDIS cell terminates a communications session with an ADSI telephone. Place this cell at the end of an application, at the conclusion of the display screen interaction.

ATTENTION

If your application does not execute the dsDIS cell before hanging up, the ADSI telephone automatically clears the application session when the hang up occurs. However, before the application is terminated, ensure that any communications sessions that are opened during application execution are closed.

Disconnecting an ADSI session does not terminate the call.

Note: If you connect to the ADSI phone in Feature Download mode, then you also need to disconnect from the ADSI phone in Feature Download mode.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled	NO	Determines if this cell logs the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Disconnect for Feature Download	No	If you set the flag to “YES,” then AP software disconnects feature-download functionality. If you specify “YES” in the parameter Connect For Feature Download in the dsCON cell, then specify “YES” in the parameter Disconnect for Feature Download in order to disconnect feature download.

dsINFO - Display Information cell

The dsINFO cell downloads a list of ASCII text lines to an ADSI telephone. This cell directs an application to output information to the caller. By default, the dsINFO cell clears the Information page and then writes out the new lines of text. Each line of text is associated with the set of soft keys provided.

If you choose to keep the lines from the previous display, the application can optionally update only those lines on the current display that you wish to change. In this case, the application does not clear the screen, and the first line updated may not be the first line on the screen. Note that it is possible for the lines that are modified on the display to associate a different set of soft keys with them.

The dsINFO cell displays both a group of information lines and a set of soft keys. To temporarily change the soft key set without disturbing the lines currently on the display, specify the new soft key set with zero information lines; and set the parameter `Clear Screen First` to `No`.

A Visual VoiceMail application illustrates this concept. When the display contains a list of messages in the caller's mailbox, the soft keys provide functions such as SAVE, DELETE, PLAY, HELP, and so on. When the caller presses PLAY, the soft keys temporarily change to provide functionality for STOP, PAUSE, SPEEDUP, SLOWDOWN, and so on. Once the message plays, the line is updated to reflect the message status, and the display returns to represent the original soft key set.

> ***Note:*** Because an ADSI phone cannot display null lines, an empty line prevents the display of all subsequent information. Therefore, the `First Line to Update` must be the number of either an already existing line or the immediate next line, on the ADSI display. Note that you can create a blank line by entering a blank space on the line.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell logs the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Clear Screen First?	YES	Determines if the dsINFO cell clears the Information page before displaying the new Information Lines.
First Line to Update	1	Line number of the virtual display that contains the first line of the Information Lines table.

Parameter	Initial Value	Explanation
Split Display Lines	NO	Determines whether and how you split the display line. By default, the first 20 characters of the display are shown in the primary column; the remaining characters are displayed in the secondary column. If you specify "YES" as the value for this parameter, then you must specify and control the place to split the display line. ***Note:*** If you specify a value of "YES" in the parameter `Split Display Lines`, then you must specify a value for the parameter `Column Delimiter`.
Column Delimiter	DATA EXCHANGE	Buffer or value of a single character used in the display line to indicate the point where you want the line to split. ***Note:*** If you specify a value of "YES" in the parameter `Split Display Lines`, then you must specify a value for the parameter `Column Delimiter`.
Soft Key Set	" "	A comma-separated list of previously defined Soft Key IDs. You can specify up to eight IDs presented in any order. The special ID1 is the NULL key.
Enable Wrap?	No	A switch that specifies that the text shown on an ADSI screen extends either to the maximum width allowed (requiring the caller to use the scroll bar to read the entire string) or only to the width of the screen with text beyond that limit appearing on the next line.

Parameter	Initial Value	Explanation
Text Format	Left Justified	An option menu that provides formatting direction to information on the ADSI screen. The options include the following: • Left Justified • Right Justified • Centered • Indented ***Note:*** To indent or center text, set the `Enable Wrap?` parameter to YES.
Title	NO	Determines if the application considers the first line of the Information display a non-scrollable title.

Note: For strings longer than 20 characters, the dsINFO cell divides the string into two parts and displays the first 20 characters in the first column of the screen and the next 20 characters in the second column.

Note: For more information on text formatting on an ADSI phone, refer to the Bellcore Specifications SR-INS-002461 for Analog Display Service Interface.

Next branch

Next branch	Description
Error	Error in ADSI transmission.
Not ADSI	ADSI Session is not yet established.
Success	Successful download and display of a list of text strings to an ADSI display telephone.

Tables

Table	Description
Information Lines	A list of buffers or values that contains the text for each line to be displayed. You can supply more than 32 characters of data through a User function or a global buffer, but no more than 40 because ADSI displays support only 40 characters.

dsINPUT - Get Data cell

dsINPUT receives data from ADSI phones. It is analogous to GDAT. It also decodes the ADSI-encoded string and places the alphanumeric data in a buffer. Input is in the form of DTMF digits that the caller enters by pressing telephone keys on either the DTMF keypad or the alphanumeric keypad. The `Input Digit Buffer` parameter designates the buffer that stores the caller's input.

dsINPUT has one parameter that limits the time available for the caller to enter input. The `Input timeout` parameter sets the time limit for entering all of the digits.

If the caller exceeds the timeout value, the application considers the input invalid and a timeout occurs. The caller hears the timeout prompt.

Digit entry ends successfully when the caller either enters the number of digits indicated by the `Input Length` parameter or presses the termination digit (this is designated in the Default Cell. It is usually #). If the caller meets either of these specifications within the `Input timeout`, the application considers the input valid.

> ***Note:*** If the caller decides to enter fewer digits than specified in the `Input Length` parameter and hits the ACCEPT key on the ADSI phone, input is considered valid and the Success branch is taken.

dsINPUT allows the caller to reenter the DTMF after a timeout. To implement this feature, the applications programmer sets the `Number of Timeout Retries` parameter. If the caller exceeds this maximum, the application will take the Timeout branch.

The `Abort Play on Input` parameter controls the call flow if the caller tries to enter input while a prompt is still playing. If this parameter is set to `Yes`, then a caller familiar with the application can skip through the prompts by inputting information before the application requests it.

The Allow Overdialing parameter determines if the application will buffer input from one cell to another. If Allow Overdialing is set to No, then AP software will clear the input buffer before dsINPUT makes a request for input; if Allow Overdialing is set to Yes, then AP software will not clear the input buffer, and the request for input includes any digits existing in the input buffer. This parameter should be set to Yes when alphanumeric input is entered.

For example, if two successive cells each require a single digit of input, and the Allow Overdialing parameter is set to Yes on the second cell, then the caller can press two digits in quick succession when the first cell plays, and the AP software will save the second digit to respond to the request for input made by the second cell. Furthermore, if the Abort Play on Input parameter in the second cell is also set to Yes, the caller will not even hear the second cell's prompt for input.

The dsINPUT cell can play up to 32 prompts while the application collects ADSI information entered by the caller.

This can be useful with successive PDAT or COMP cells. A PDAT cell with the Data Type parameter set to ALPHANUMERIC can play back the contents of the buffer specified in the dsINPUT cell's Termination Digit Buffer parameter. A COMP cell can determine whether the terminating digit captured by the dsINPUT cell is a # or *.

> ***Note:*** The ADSI phone does not send the data to the application unless the caller presses a soft key specified in the dsDATA cell. To set this up, the application programmer must include a dsDATA cell before any dsINPUT cell. The dsDATA cell allows the definition of three soft keys to correspond with the actions Backspace, Clear, and Accept.

Buffers used

None

Buffers updated

dsINPUT updates the buffers specified by the Input Digit Buffer, # of Digits Input, and Termination Digit Buffer parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Input Length (digits)	1	The number of digits to accept from the caller. This can be a value or a buffer.
Input Timeout (seconds)	15	The time, in seconds, in which the caller must enter all digits. If this value is exceeded, a timeout occurs. Setting this parameter to 0 sets the time allowed for entering digits to the time it takes to play all of the prompts specified in the cell's Play Prompt Table.
Timeout Prompt	56 ("That is an invalid response.")	The number of the prompt that the caller hears after a timeout occurs. The initial value, prompt 56, says "That is an invalid response." This value can be either a prompt number or a buffer.

Parameter	Initial value	Explanation
Number of Timeout Retries (0–9)	3	Number of times the caller can try again after a timeout.
Abort Play On Input (Y/N)	YES	Indicates whether the application should abort the prompt if the caller tries to enter input during the play.
Allow Overdialing (Y/N)	NO	Indicates whether the application should allow digits to accumulate from one cell to the next.
AlphaNumeric Input?	YES	Setting to determine if the caller can enter alphanumeric characters from the screen. This capability is hardware dependent. ***Note 1:*** To retrieve either alphanumeric or DTMF data, this cell must immediately follow a dsDATA cell in the call flow, and the value of this parameter must agree in both cells. ***Note 2:*** For DTMF only, a GDAT cell has the same functionality when this parameter is set to `NO`.
Input Digit	DIGITS	The buffer that accepts the caller's input. Can be a system buffer or a user-defined buffer.
Number Of Digits Input	NUMBER OF DIGITS	The buffer that stores the number of digits that have been accepted from the caller. Can be a value, a system buffer, or a user-defined buffer.
Termination Digit Buffer	TERMINATIO N DIGIT	The buffer that will capture the # or * termination digit, if any, that terminates a string of digits entered by the caller. Can be a system buffer or a user-defined buffer.

Parameter	Initial value	Explanation
Confidence Level	RESULT	The buffer that captures the resulting confidence level (0–10); this can be a system buffer or a user-defined buffer.
Buffer Count for Number of Prompts	1	Indicates the number of prompts (up to 32) to play to the caller. Can be specified as a number or a buffer. The prompt numbers must be listed in the Play Prompt table.

Next branch

Next branch	Explanation
Error	One or more of the prompts listed in the Play Prompt Table does not exist.
Timeout	The Number of Timeout Retries has been exceeded.
Success	The input was collected from the caller.

Tables

Table	Explanation
Play Prompt Table	Designates the prompts to play to the caller. Can be specified as prompt numbers or buffer names.

dsKEYS - Define Soft keys cell

The dsKEYS cell downloads up to six soft key definitions to an ADSI telephone. Subsequent dsINFO, dsMENU, and dsDATA cells in the application can then access these definitions. Soft keys provide selection buttons for menus, supplemental menu choices, navigational control through informational displays, editing capabilities, and so on. Consistent use of soft keys throughout an application can provide a flexible and powerful user interface.

The 32 soft keys available for definition on an ADSI telephone are numbered from 2 to 33. The ADSI specification designates Soft Key number 1 as the NULL Soft Key. That is, you can use Soft Key number 1 as a placeholder in a Soft Key set definition to allow for custom placement of the Soft Keys on the telephone screen.

You can create sets of Soft Keys in your OPEN IVR application by defining comma-separated lists that contain up to eight Soft Key Definers. You can display up to six keys on an ADSI-compliant screen phone.

Keys 7 and 8 provide special functions for the scrolling capability of the screen phone. You can define these Soft Key sets in buffers for reference by other ADSI cells or define them directly on the parameter page of the ADSI cells. Placing the set definitions in buffers allow for a convenient way to use Soft Key sets consistently throughout your application.

AP software reserves some Soft Keys for special purposes associated with various ADSI cells as follows:

- Key number 33 is reserved to keep callers from scrolling the active line indicator onto a title line.
- Key numbers 30, 31, and 32 are reserved for the special editing actions used in the dsDATA cell for the functions ACCEPT, BACKSPACE, and CLEAR. You can reference these keys in the dsDATA cell by using the special characters “A,” “B,” “C,” and “L” respectively, rather than by numerical ID.

- You can reserve keys numbered downward from 32 to 24 for the special SELECT function associated with the dsMENU cell. These keys are referenced in the dsMENU cell by using the special character “S” in the Soft Key set. AP software associates the correct SELECT key with each menu item presented on the screen and returns the single-digit item number.

Only the number of SELECT keys necessary for a particular menu are defined, including NONE if the special character “S” does not appear in the Soft Key set on the dsMENU parameter page. Thus, you can define keys 24 through 29 as application-specific.

Note 1: Use the other Soft Keys first, and document the fact that future modifications to the application should not include dsMENU cells that reference this key range.

Note 2: If the special character “S” appears in a set for other than a dsMENU cell, the character is automatically replaced by the NULL Soft key.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell logs the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Disable Key When Pressed	YES	Setting to enable/disable the Soft Key once the key is pressed by the caller. Defaults to “YES” to prevent accidental double sends.

Branch

Branch	Description
Error	Error in ADSI transmission or the telephone is not ADSI-compliant.
Not ADSI	ADSI Session is not yet established.
Success	Successful Soft Key download to an ADSI display telephone.

Tables

Table	Description
Soft Key Definitions	A list of up to six Soft Key definitions. Each definition includes four components described under Table Entries.

Table entries

Entry	Description
Definer ID	Buffer or Value. The Soft Key ID number from 2 to 23. See the explanation in the text description for this cell.
Short Label (7)	Buffer or Value. Label to display on the screen for this Soft Key. The maximum number of characters is seven.
Long Label (18)	Buffer or Value. Soft Key label for large displays or the help text for short labels that are supported by the screen phone.
Digits Returned	Buffer or Value. DTMF string that is sent to the application if this key is pressed. See the note that follows.

Note: Digit strings can contain 1 – 9, #, *, or special command characters. Currently, OPEN IVR ADSI cells accept the following special command characters:

- "A": Returns the content of the input buffer.
- "B": Erases the last character of the input buffer.
- "C": Clears the input buffer.
- "L": Causes the ADSI phone to return to the two-digit line number on which the cursor rests (01 – 33).

dsMENU - Display Menu cell

The dsMENU cell downloads a list of menu options to an ADSI telephone. Your application can define a maximum of nine selection items and as many as six soft keys to perform special, application-specific functions. Refer to the discussion of the dsKEYS cell for more information about soft keys.

On all ADSI phones, the caller can scroll through the menu items using the built-in features of the display telephone. Using these features, the caller can select an item by highlighting it and then pressing the SELECT soft key. Otherwise, the caller can use the telephone keypad to directly input the corresponding item number that optionally appears to the left of each menu item.

> ***Note:*** You can make the menu appear smaller and less intimidating, and simultaneously provide extended functionality, by designating consistent labels for some of the soft keys and DTMF keys on all menu displays: for example, operator revert, information, help, back up one menu level, return to the top menu level, and repeat the menu.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell logs the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Menu Title	<none>	Buffer or value. Non-scrollable textual string that is displayed above the menu items.
Auto-Number	YES	Determines if the display precedes each menu item with the number corresponding to the DTMF key for that choice. The number is displayed in reverse-video if it is supported by the ADSI telephone.)
Display Blank Lines	YES	Determines if the empty string is displayed.
Count Blank Lines	YES	Determines if the empty string is counted when line numbers are displayed.

Parameter	Initial value	Explanation
Split Display Lines	NO	Determines whether and how you split the display line. By default, the first 20 characters of the display are shown in the primary column; the remaining characters are displayed in the secondary column. If you specify "YES" as the value for this parameter, then you must specify and control the place to split the display line. ***Note:*** If you specify a value of "YES" in the parameter `Split Display Lines`, then you must specify a value for the parameter `Column Delimiter`.
Column Delimiter	DATA EXCHANGE	Buffer or value of a single character used in the display line to indicate the point where you want the line to split. ***Note:*** If you specify a value of "YES" in the parameter `Split Display Lines`, then you must specify a value for the parameter `Column Delimiter`.
Soft Key Set	"S"	A comma-separated set of Soft Keys. The special ID "S" indicates the position of the SELECT key.
SELECT Key Short Label (7)	"Select"	Buffer or Value. Label displayed on the screen for the SELECT key, using a maximum of seven characters.
SELECT Key Long Label (18)	"Select Active Line"	Buffer or Value. Label displayed on large screens or as help text if it is supported by the screen phone.

Parameter	Initial value	Explanation
Enable Wrap?	No	A switch that specifies that text displayed on an ADSI screen extends either to the maximum width allowed, which requires the caller to use the scroll bar in order to read the entire string, or only to the width of the screen with text beyond that limit is displayed on the next line.

Text Format	Left Justified	An option menu that provides formatting direction to information on the ADSI screen. The options include the following:
		`Left Justified`
		`Right Justified`
		`Centered`
		`Indented`

Menu Item Count	0	Number of items in the menu displayed on the ADSI screen.

Next branch

Next branch	Description
Error	Error in the ADSI transmission or the telephone is not ADSI compliant.
Not ADSI	The ADSI session is not yet established.
Success	Successful download and display of a menu to an ADSI display telephone.

Tables

Table	Description
Menu Items	A list of up to nine buffers or values that contain the text for each menu item that is displayed. If the value of Auto-Number is “YES”, then the items are automatically numbered starting from one (1) when they are displayed. This list can be longer than 32 characters but no more than 40 because ADSI displays support only 40 characters.

dsMODE - Support Data Mode cell

The dsMODE cell enables you to choose between Voice and Data mode. The default mode is `Voice`. When you specify Data mode, the handset and the keypad of the ADSI phone are disabled.

In Voice mode, the following events occur:

1 A CAS tone is sent to the phone to verify the existence of the ADSI device.

2 AP software receives an acknowledgment to confirm the ADSI device.

3 The ADSI databurst is sent to the phone.

4 AP software receives an acknowledgment of either success or failure of the transmission.

The person who is using the phone hears the CAS tone each time an ADSI cell is executed. Once the first cell is executed, the application acknowledges the existence of a valid ADSI device; repeated CAS tones are not necessary in order for the application to continue.

Specifying Data mode in the dsMODE cell enhances the application for the following reasons:

- A CAS tone is not required before data is sent to the ADSI phone.
- The handset on the phone is muted to reduce noise during the data transmission.
- The keypad for the phone, including the soft keys, is disabled so that the user cannot disrupt the transmission.

  Note: When you set the ADSI phone to Data mode, the handset and keypad are disabled. Therefore, the user cannot interact with the phone. Nortel recommends that you do not continuously leave the phone in Data mode.

You can switch between Data mode and Voice mode at any time during the execution of the application by specifying your preference in the parameter `Current Transmission Mode`. However, establish a connection with the ADSI phone before you change the mode. Note that specifying Data mode affects all ADSI cells in the application.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell logs the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Current Transmission Mode	VOICE	Enables you to switch your application between VOICE and DATA mode. When you specify DATA mode, the handset and keypad of the ADSI phone are disabled and users cannot hear prompts.

Next branch

Next branch	Description
Error	Error in the ADSI transmission or the telephone is not ADSI compliant.
Not ADSI	The ADSI session is not yet established.
Success	Successful download and display of a menu to an ADSI display telephone.

Tables

None

dsUSER - Connect ADSI User Function cell

The dsUSER cell provides the ADSI application with the capability to access specific low-level commands supported by an ADSI phone. Since AP software Developer cells provide only a limited facility for accessing these commands, application programmers can customize a User Function using the ADSI "C" Application Programming Interface (API). The OPEN IVR application can then use the dsUSER cell to access the User Functions.

By using a dsUSER cell, an application can build ADSI Level 3 messages (calls from the API) using the User Function. The User Function can then wrap these messages up into ADSI Level 2 messages and automatically send them to the ADSI phone to access the commands. When the call flow passes out of the dsUSER cell, the cell performs the required cleanup procedures. Executing the dsUSER cell does not alter the contents of any buffers.

> ***Note:*** Nortel recommends that only experienced programmers use the dsUSER cell. The Release 4.0 *Symposium OPEN IVR Application Development Guide* presents information on writing User Functions.

The dsUSER cell provides the interface between the ADSI application and a User Function as customized code written in the "C" programming language.

When creating a cell with dsUSER, the application programmer designates a set of input buffers with which to pass to the user function any information it needs from the application.

As with any OPEN IVR buffers, each of these input buffers can store a string of ASCII characters, except commas, up to a maximum of 1920 characters in length. AP software treats numbers as character strings: for example, 900 is saved in an OPEN IVR buffer as "900".

When successful, the User function returns a Reply Code, which is defined in the Reply Code Table, to the application. The Reply Code is defined in the Reply Code Table. The next cell depends on the value of that reply code. Then, the dsUSER cell checks the Reply Code Table to find the next cell corresponding to the Reply Code.

When the User Function is not successful, a status code of `Not ADSI`, `Timeout`, or `Fail` is returned, as well as a corresponding reply code. The application then branches to the next cell, depending on the value of both of these codes:

- If the value of the Status Code is `Not ADSI`, then the call flow takes the `Not ADSI` branch.
- If the value of the Status Code is `Failure`, then the call flow takes the `Fail - Next Cell` branch.
- If the value of the Status Code is `Timeout`, then the call flow takes the `Timeout` branch.

Buffers used

The dsUSER cell uses the input buffers listed in the Input Buffer Table.

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell logs the following information to the Call Audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing process logs the contents of this buffer to the audit_stat.d file. The maximum value for this buffer is 32 bytes.

Parameter	Initial Value	Explanation
User Function Name	<NONE>	Name of the User function to interface with the application.
Function Code	1	The user-defined function designated for execution at this time.
Timeout (seconds)	15	Maximum time, in seconds, for the user function to perform its task. If execution time exceeds this value, a timeout occurs and the User function returns a Timeout status code. The User function itself maintains the timeout: AP software does not manage the timeouts.
Input Buffer Count	0	Number of buffers the application passes to the User function. The Input Buffer Table lists the names of the buffers.

Next branch

Note: If the User function is successful, then the branch is determined from the information in the Reply Code Table.

Next branch	Explanation
Not ADSI	Input received is not ADSI data.
Timeout	Timeout status code is returned.
Fail	A Failure Status Code is returned. This can indicate that the User function does not exist or is shut down prematurely, or the Reply Code is not valid.

Tables

Table	Explanation
Reply Codes	Lists each possible Reply Code. Valid reply codes are 0 through 9.
Input Buffer Table	Lists the name of each input buffer. These buffers can contain more than 32 characters of data but no more than 40 because ADSI displays support only 40 characters.

EVENT - Generate EVENT cell

The EVENT cell enables you to generate two types of events:

- Audit events
- SNMP traps

Audit events

The parameter `Generate AUDIT Event` is set to "Yes" by default. If you accept the default setting and audit events for an application, then application-specific information at arbitrary points within a call flow is generated for each call that uses an EVENT cell.

For each call that uses an EVENT cell, two types of information are logged:

- Data specific to the call
- Data specific to each cell encountered

The information collected for the call includes the following:

- Application name
- DID/DNIS
- ANI
- Channel number
- MRS number
- trunk number
- Start date and time
- Stop date and time
- Number of EVENT cells logged (up to a maximum of 2Kbytes of data). See the note that follows this description.

You can turn off the auditing capabilities of the EVENT cell without removing the cell in two ways:

- Click `No` for the parameter `Generate AUDIT Event`.

- Invoke the sconfig tool and specify `off` for the audit capability.

To invoke the sconfig tool from the command line, enter the following:

```
sconfig -audit [on off]
```

Reset AP software in order for the changes to take effect.

The audit information collected for each execution of an EVENT cell includes the following:

- Application name - (for GSUBs and EXECs)
- Cell name
- Cell number
- Contents of comment field
- Number of buffers to log (up to a maximum of 5)
- Contents of these buffers. Logs the values placed in these buffers by previous cells. A maximum number of 31 characters in each buffer are stored in the file `auditstat.d`. All other characters are truncated.
- Date and time the cell execution is completed

  Note: OPEN IVR can log only 2048 bytes of call statistics for a single call (including call statistics logged by audit events in the EVENT cells and cells with CALL AUDITING enabled) to the file `audit_stat.d` statistics, according to the following formula:

  ```
  [(13 + (string length of buffers) ) * the number
  of cells audited] ð 2048
  ```

If the limit is exceeded, the system logs an error into the event log stating that the 2048 byte limit is exceeded; further call statistics are lost.

The amount of collected data is accumulated as follows. For each cell where audit events are generated (using either the EVENT cell or `Call Audit Enabled` parameter on any other cell), the amount of data collected for each audited cell is 13 bytes + [the number of characters +1 for each buffer specified (up to 5 buffers in the EVENT cell or 1, representing the Audit Information parameter in any other cell)].

SNMP Traps

You can enable AP software to generate SNMP traps when the EVENT cell in your application is executed. Click `Yes` for the parameter `Generate SNMP Event` in order to generate SNMP traps (default setting is `No`).

Specify in the buffer table the buffers that contain specific events you want trapped. Note that all five buffers are concatenated and sent as one event.

Refer to the Release 4.0 *Symposium OPEN IVR System Administration Guide* for additional information about SNMP.

Buffers used

None

Buffers updated

None

Parameter

Parameter	Initial value	Explanation
Number of Event Buffers (0 – 5)	0	Number of buffers that contains event-specific information.
Generate SNMP Event?	No	Determines if the EVENT cell generates an SNMP trap.
Generate AUDIT Event?	Yes	Determines if the EVENT cell generates call statistics.

Next branch

Next branch	Explanation
Success	The event is successfully logged.

Tables

Tables	Explanation
Event Buffer Table	The buffers containing event specific information. These buffers determine what information to send to the management platform. The contents of these buffers cannot exceed 31 characters.

Note: The data collected by the EVENT cell when the parameter `Generate AUDIT Event?` is set to "Yes" is also collected by every cell in the application call flow where the option "Call audit enabled?" is set to Yes. For more information, refer to the Release 4.0*Symposium OPEN IVR System Administration Guide*.

All data is written to the file `stat.d/audit_stat.d.` You can convert this data to ASCII format by using the `export` tool. See the Release 4.0 *Symposium OPEN IVR System Administration Guide* for more information on the export tool.

EXEC - Execute Application cell

EXEC tells OPEN IVR to begin executing another application on the current channel. EXEC makes it possible to break a large application into several smaller ones. When a call is received, it could be handled by an application that simply determines which of several other applications should take the call, and then an EXEC cell could turn the call over to the appropriate application.

> ***Note:*** The other application must be loaded and started. You cannot assign a channel to an application which has been executed by means of an EXEC cell.

If OPEN IVR is able to pass control to the other application, control of the call is turned over to the other application. If OPEN IVR is unable to start the other application, then the current application branches to the Error next cell.

> ***Note:*** Applications spawned from the EXEC cell should not contain an ANSW cell, if the cell is already answered or an outdial application.

The name of the application to be executed is taken from a buffer. A STOR cell can be used to put the filename into a buffer to make the filename available to the EXEC cell. The filename must be placed in quotation marks and the `.vpf` extension, which is added to a filename by OPEN IVR, must be removed. For example, if you want to start the application named `filename.vpf`, you can use STOR to put it into the buffer as `filename`.

When the new application is started, the current application passes the values of all its system buffers to the new application so it can use them. However, because the values of its user-defined buffers are not passed to the new application, only system buffers should be used for storing values that the new application will use.

Note that you cannot use the EXEC cell in an application that is invoked by the GSUB cell.

Buffers used

EXEC uses the buffer specified by the `Application Name Buffer` parameter.

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Application Name	DIGITS	The buffer containing the name of the application to be executed. Can be a system buffer or a user-defined buffer. The maximum value cannot exceed 10 characters.

Next branch

Next branch	Explanation
Error	The other application could not be started. This is the only branch.

Tables

None

GAIN - Adjust Gain cell

GAIN adjusts the gain on the trunk that is running the application. The change in gain affects playback of prompts and messages only; it does not affect the gain when recording prompts and messages, and it does not affect text-to-speech. The change in gain will last for the duration of the call or until the execution of another GAIN cell.

Adjustment is relative to the normal gain level and is made in steps of 3 dB. For example, an adjustment of 2 will increase the gain by 6 dB. The allowable range of adjustment values is -3 to +4 steps.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameter	Initial value	Explanation
Adjustment	0	The number of steps to change the gain. Steps are 3 dB each; the range is from -3 to 4.

Next branch

Next branch	Explanation
Success	This is the only branch.

Tables

None

GDAT - Play Prompts And Get Data cell

GDAT plays one or more prompts and collects up to 31 digits of input from the caller. Input is in the form of DTMF digits that the caller enters by pressing telephone keys or through speech recognition where a digit is spoken by the caller if the option is enabled.

Digits can be collected from the caller during or after playback of the prompts. The `Input Digit Buffer` parameter designates the buffer that stores the caller's input.

> ***Note:*** The dsINPUT cell retrieves alphanumeric data more efficiently from an ADSI phone. While GDAT can function in this instance, its use requires additional decoding in order to obtain the information in the expected format.

The GDAT cell includes two parameters to limit the amount of time for the caller to enter input.

Input timeout (seconds)

Sets the time limit in seconds for entering all of the digits.

Interdigit timeout (seconds)

Limits the time in seconds between entering one digit and the next; also limits the time for entering the first digit. This value is also used when speech recognition is enabled to determine how many seconds to wait for a speech-recognizer resource.

If either of these timeout values is exceeded, then the input is considered invalid and a timeout occurs. The caller hears the timeout prompt.

If speech recognition is enabled and the interdigit timeout is exceeded waiting for a speech-recognizer resource, the error branch from the cell is taken.

Digit entry ends when the caller either enters the number of digits indicated by the `Input Length` parameter or presses the termination digit. If the caller performs either action within the time limits, then the input is considered valid.

The retry feature in the GDAT cell allows the caller to try again after a timeout. You choose the maximum number of timeout retries. If the caller exceeds this maximum, then the application takes the TimeOut exception branch.

The `Abort Play on Input` parameter controls the outcome if the caller tries to enter input while a prompt is being played. If this parameter is set to "Yes", then a caller who is familiar with the application can skip through the prompts by pressing digits that the application requests.

> ***Note:*** The parameter `Abort Play on Input` does not affect the application if speech recognition is enabled through the VINP cell.

The `Allow Overdialing` parameter determines whether input will be buffered from one cell to another. If the parameter `Allow Overdialing` is set to "No" then the input buffer is cleared before the GDAT cell makes requests for input. If `Allow Overdialing` is set to "Yes", the input buffer is not cleared and the request for input includes any digits existing in the input buffer. For example, if two cells require a single digit of input and if the `Allow Overdialing` parameter is set to "Yes" on the second cell, then the caller can press two digits in quick succession at the first cell and the second digit is saved until needed by the second cell. If the `Abort Play on Input` parameter is also set to "Yes", the caller does not hear the prompt for the second cell.

> ***Note:*** If speech recognition is enabled through the VINP cell, then overdailing is not affected.

The GDAT cell can play up to 5 prompts while digits are collected.

The GDAT cell includes the `Termination Digit Buffer` parameter for capturing the digit, if any, that the caller enters to terminate the string of digits entered. The default buffer that is updated is the `Termination Digit Buffer`. This feature of GDAT can be useful with successive PDAT or COMP cells. A PDAT cell with the `Data Type` parameter set to ALPHANUMERIC can play back the contents of the buffer specified in the `Termination Digit Buffer` parameter of the GDAT cell, whereas a COMP cell can determine the terminating digit captured by the GDAT cell.

Note: If the terminating digit is the only digit entered, the terminating digit is in both the `Termination Digit Buffer` and the `Input Digit Buffer`. For all other cases, the terminating digit does not appear in the `Input Digit Buffer`.

Get Data Termination

Sets the telephone keys that the caller can press to terminate inputting data. Defining a Termination Digit in this field overrides whatever Termination Digit is defined in the START (DFLT) cell, for this cell only.

Note: If speech recognition is enabled for the application, any time speech is detected instead of DTMF input, a confidence level is returned by the hardware and stored in the CONFIDENCE LEVEL buffer. The buffer contains a value between 0 and 9 in increments of 1 that correspond to the percentage of accuracy the hardware calculated in recognizing speech input. The 0 digit corresponds to no confidence and 9 corresponds to full confidence.

Hang ups not detected. If a caller hangs up instead of entering digits, the GDAT cell does not recognize the hangup, and the cleanup branch is not taken. When using this cell, include cells that check the number of digits in your application. This way, if a customer hangs up, these cells recognize the hangup and route it to the HANG cell.

Buffers used

None

Buffers updated

GDAT updates the buffers specified by the `Input Digit Buffer`, `# of Digits Input`, `Termination Digit Buffer`, and `Confidence Level Buffer` parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell logs the following information to the call audit statistics file, `audit_stat.d`:
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Input Length (digits)	1	The number of digits to accept from the caller. The initial value can be a value or a buffer. The contents of this buffer cannot exceed 31 characters.
Get Data Termination	Default	The key(s) the caller can press to terminate input. The default value is the Get Data Termination digit(s) from the DFLT cell parameter page.
Input Timeout (0–75 seconds)	15	The time, in seconds, in which the caller enters all digits. If this value is exceeded, a timeout occurs. Setting this parameter to “0” sets the time allowed for entering digits to the time it takes to play all of the prompts specified in the cell’s Play Prompt Table.

Parameter	Initial value	Explanation
Interdigit timeout (0–15 seconds)	5	The maximum amount of time, in seconds, that can elapse between entry of one digit and the next. The maximum time for entering the first digit. If this time is exceeded, then a timeout occurs. A value of 0 indicates there is no time limit. If speech recognition is enabled, the value for this parameter also specifies the amount of time to wait for a speech-recognizer resource.
Timeout Prompt	56 “That is an invalid response”	The number of the prompt that the caller hears after a timeout occurs. The initial value, prompt 56, says “That is an invalid response.” This can be either a prompt number or a buffer.
Number of Timeout Retries (0–9)	3	Number of times the caller can try again after a timeout.
Abort Play On Input (Y/N)	YES	Specifies if the application aborts if the caller tries to enter input during playback. Not valid for speech recognition mode.
Allow Overdialing (Y/N)	NO	Are digits allowed to accumulate from one cell to the next?
Input Digit	DIGITS	The buffer that accepts the input from the caller. The buffer is either a system buffer or a user-defined buffer.
Number Of Digits Input	NUMBER OF DIGITS	The buffer that stores the number of digits that are accepted from the caller. The initial value is a numeric value, a system buffer, or a user-defined buffer.

Parameter	Initial value	Explanation
Termination Digit Buffer	TERMINATION DIGIT	The buffer that captures the termination digit(s), if any, that terminates the string of digits entered by the caller: either a system buffer or a user-defined buffer.
Confidence Level	RESULT	The buffer that captures the resulting confidence level (0–10) from a speech-recognition execution: either a system buffer or a user-defined buffer.
Number of prompts	1	The number of prompts to play to the caller. You can specify the value as a number or a buffer. Ensure that the prompt numbers are listed in the Play Prompt table. The maximum value for this parameter cannot exceed 5 prompts.

Next Cell

Next Cell	Explanation
Error	One or more of the prompts listed in the Play Prompt Table does not exist or, if voice recognition is enabled, a free voice recognizer could not be found.
Time-out	The Number of Time-out Retries has been exceeded.
Success	The prompts were played and input was collected from the caller.

Tables

Table	Explanation
Play Prompt Table	The prompts that will be played to the caller. Can be specified as prompt numbers or as buffer names.

GMSG - Get a Message cell

GMSG retrieves one message from a mailbox. Before GMSG can be used, the application must use an MSGS (Get Message List) cell to access the mailbox. One GMSG cell can be used repeatedly by the application to retrieve all of the messages in a mailbox. The `Message Retrieval Order` parameter allows messages to be retrieved in either FIFO (first in, first out) or LIFO (last in, first out) order. When there are no more messages to retrieve, GMSG branches to the Not Found next cell.

When GMSG retrieves a message, its message number is placed in the CURRENT MESSAGE buffer, thus making it the current message. Once retrieved, the message is available for use by the CMSG (Copy Message), DMSG (Delete Message) or PMSG (Play a Message) cell types. When the message was originally added to the mailbox by an AMSG cell, it was stamped with the date and time. GMSG retrieves the date and time and stores them in buffers that you select. Later in the application, this information can be read to the caller by PDAT (Play Prompts with Data) cells.

Buffers used

None

Buffers updated

The buffer CURRENT MESSAGE lists the number of the retrieved message. GMSG also updates the buffers specified by the `Date` and `Time` parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Mesg Retrieval Order	NEWEST FIRST	Retrieve the oldest or newest message first.
Date Sent	DATE	The buffer that will receive the date on which the message was added to the mailbox. Can be a system buffer or a user-defined buffer.
Time Sent	TIME	The buffer that will receive the time at which the message was added to the mailbox. Can be a system buffer or a user-defined buffer.

Next branch

Next branch	Explanation
Not Found	There are no more messages to be retrieved.
Success	The message has been retrieved.

Tables

None

GSUB - Call a Sub-application cell

GSUB tells OPEN IVR to redirect execution to a new cell in either the current application or another application. If the GSUB calls a different application, execution will start with the first cell of the new application. When a RETN cell is executed, OPEN IVR transfers control back to the Success branch of the GSUB cell.

> ***Note:*** The maximum number of nested levels in the GSUB cell is 12.

When OPEN IVR branches to the subroutine, the system buffers retain their current contents and are available in the called application. Only system buffers are passed. User buffers are saved; their contents are restored when control transfers back to the Success branch of the GSUB cell. User buffers are not available in the called application.

Note that you cannot use the EXEC cell in an application that is invoked by the GSUB cell.

> ***Note:*** The other application must be loaded and started. You cannot assign channels. Applications spawned from the GSUB cell should not contain the ANSW cell, if the ANSW cell has already been processed.

Buffers used

GSUB uses the buffer specified in the `Application Name` parameter. The subapplication may change the values of system buffers.

Buffers updated

None. System buffers retain their contents at the start of the subapplication. Any of these buffers that are changed between the GSUB and the RETN cells will retain these changes after the RETN cell is executed. The contents of any user buffers included in the application containing the GSUB cell are saved prior to the start of the subapplication and later restored after the RETN cell is executed.

Note: If the subapplication is a separate application, then its Default Cell parameters apply while the subapplication is active. When control returns to the application containing the GSUB cell, the Default Cell parameters revert back to their original values. If a caller hangs up in the middle of this subapplication, any cleanup handlers that are defined for the subapplication execute first. Then the cleanup handlers for the calling application execute next.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Application Name	“ ”	The name of the application (may be stored in a Buffer or entered as a Value) to begin executing. If a value, the application name should be in quotation marks. If the subroutine is within the current application, you must specify an empty string “ ”. The value of this parameter cannot exceed 10 characters.

Next branch

Next branch	Explanation
Error	The operation was not successful. No such application is currently loaded.
Success	The operation was successful. This is where execution will continue after the RETN cell is executed.
GSUB	This appears if there is an internal subroutine with no application name specified.

Tables

None

HANG - Hang Up cell

HANG places the channel on-hook. There is an option to play prompts to the caller before hanging up the channel. The cleanup handler is executed after processing this cell.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Number of Prompts (max 5)	0	How many prompts to play to the caller before the application hangs up. Can be specified as a number or a buffer. The prompt numbers must be listed in the Hang-up Prompt table.

Next branch

None

Tables

Table	Explanation
Hang-up Prompt Table	The prompts that will be played to the caller before the application hangs up. Can be specified as prompt numbers or as buffer names.

LANG - Set Language cell

The LANG cell is used to set the offset for system and application-specific prompts, and to associate that offset with a particular language. You can also use this cell to avoid the occurrence of conflicting prompts from different applications.

The LANG cell allows you to specify a base prompt number (offset) for the system prompts and a separate base prompt number (offset) for the application prompts. As prompt IDs are used throughout the application, the appropriate offset will be applied.

The `Language` parameter is used by the PDAT cell. This value is used to determine the syntax to be used to speak numbers, dates and so on.

The `Vocabulary Group` parameter lists those groups with common vocabularies. You can enter this value directly into the text field. OPEN IVR validates this against the list specified by the field entered by the Vocabulary Group browser and warns of invalid values. This field contains the vocabulary names for comparison and displays in the VINP cell when the `Use Common Vocabularies` parameter is set to "Yes". Although it is not listed in the browser list, you may specify "None." For more information, see Appendix B, "Customization and Internationalization," of the Release 4.0 *Symposium OPEN IVR Application Development Guide*.

Predefined system prompts are in the range 0 to 499. If you wish to support multiple languages, the system prompt range is enlarged by 500 prompts for every language supported. For example, if you support English, French, and Spanish, you would need (3*500) = 1500 prompts.

You could lay out the prompts on the disk in the following manner:

Range	Prompts
0–499	English system
500–999	French system
1000–1499	Spanish system

You can also have multilingual application prompts. As an example, these prompts could be mapped in the following manner:

Range	Prompts
1500–1999	English application
2000–2499	French application
2500–2999	Spanish application

Once the prompts are placed on the MRS, the user can program the application to support these languages. A MENU cell could allow the caller to select in which language to execute the application. Each branch of the MENU cell would go to LANG cells which would load the value of the offset on the disk where the system prompts start (English=0, French=500, Spanish=1000), and where the application prompts start (English=1500, French=2000, Spanish=2500), and the language ID which will be used to format data played through the PDAT cell.

To use the LANG cell to relocate application prompts to do the following:

1 If you have application prompts that need to be relocated, use the mvpmt tool to copy the prompts to the new location. Refer to the chapter on "Tools" in the Release 4.0 *Symposium OPEN IVR System Administration Guide* for more information about the `mvpmt` tool.

2 Add the LANG cell to your application anywhere before the first cell that references your application prompts.

3 Specify the amount that the application prompts have been moved in the field application offset. For example, the application prompt 200 was moved to prompt location 300. The application offset field of the LANG cell would contain the difference between the location specified in the application and the new location, which is 300-200=100.

To use the LANG cell for multilingual purposes, do the following:

1 If your application is supporting multiple languages, the system prompts field of the LANG cell would be updated with the offset where the system prompts of a particular language are stored on the MRS. For example, if the French prompts on your MRS started at prompt 500, then you would enter 500 into the System Prompts field of the LANG cell.

2 If your application is supporting application prompts for multiple languages, the application prompts field of the LANG cell would be updated with the offset where the application prompts of a particular language are stored on the MRS. For example, if the French application prompts on your MRS started at prompt 500, then you would enter 500 into the application prompts field of the LANG cell.

3 In order to provide multilingual formatting of data in the PDAT cell, the language field of the LANG cell is updated. For example, if formatting of the French language is wanted, then you specify "French" in the language field of the LANG cell.

Note: All applications should contain a LANG cell so that if prompts need to be relocated later, only the LANG cell is affected. In addition, the values specified in the LANG cell are preserved in any applications that are called as subroutines or are executed with the EXEC cell.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
System Prompts	0	Buffer or value: Offset to be added to the application prompts to determine the actual prompt to play.
Application Prompts	0	Buffer or value: Offset to be added to the system prompts to determine the actual prompt to play.
Language	“English”	Buffer or value to be used to determine proper syntax for PDAT data.
Vocabulary Group	“None”	Lists those groups with common vocabularies. You can enter this value directly into the text field.

Next branch

Next branch	Explanation
Error	An error has occurred; possible cause: offset not within the allowed range.
Success	Language properly defined with valid offsets.

Tables

None

LDLV - Get Schedule Event List cell

LDLV retrieves information associated with an application that has been scheduled by a DELV (Schedule a Delivery Application) cell. Given the application name, the outdial number, and a Scheduled Event ID value starting with 0, LDLV retrieves the following items:

- The delivery event ID. LDLV puts this into the specified buffer.
- The message number associated with the scheduled application. LDLV puts this into the specified buffer.
- The buffers DATA EXCHANGE #1, DATA EXCHANGE #2, DATA EXCHANGE #3, DATA EXCHANGE #4, and DATA EXCHANGE #5.

One LDLV cell can be used repeatedly in an application to retrieve information about every scheduled event for the specified application and outdial number. Because there may be several such events, you may need to check each one by having the application use a PMSG cell to play the retrieved message, and five PDAT cells to play the contents of the DATA EXCHANGE buffers.

> ***Note:*** You can use the `devnt` and `sched` tools in conjunction with the LDLV cell.

`devnt` displays the contents of the `csc_events` file, which resides in the `sys_files` directory. This file contains a list of all the times, telephone numbers, and event IDs scheduled to run for the applications.

`sched` provides the same functionality as the DELV, UDLV, and LDLV cells, but with a command line interface.

Refer to the section about Tools in the Release 4.0 *Symposium OPEN IVR System Administration Guide* for more information.

Buffers used

LDLV uses the buffers specified by the `Application Name` and Outdial `Number Buffer` parameters. It also retrieves the DATA EXCHANGE #1, DATA EXCHANGE #2, DATA EXCHANGE #3, DATA EXCHANGE #4, and DATA EXCHANGE #5 buffers.

Buffers updated

LDLV updates the buffers specified by the `Delivery Handle Buffer` and `Schedule Event ID` parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Application Name	“ ”	The scheduled application. Your name can specify the actual name of the application, in quotes, or a buffer that contains the name of the application. The value of this parameter cannot exceed 10 characters.
Outdial Number	DIGITS	The phone number that the scheduled application is set to call. This value cannot exceed 31 characters.
Delivery Handle	CURRENT MESSAGE	The buffer containing the message number to be passed to the scheduled application.

Parameter	Initial value	Explanation
Schedule Event ID	DELIVERY EVENT ID	The buffer that stores the ID of the scheduled application. This value must start with 0. If you decide to unschedule the application with a UDLV cell, you will have to use this ID.

Next branch

Next branch	Explanation
Fail	An error has occurred.
No Events	There are no more scheduled events with the specified application name and outdial number.
Success	Information about the scheduled event has been retrieved.

Tables

None

LISTEN - Listen To Speech cell

The LISTEN cell performs Automatic Speech Recognition (ASR) for OPEN IVR AP software applications. The LISTEN cell can initiate the recognition process, as well as retrieve information spoken by a caller, evaluate and assign a Confidence Level to the information, and store the information in a buffer, making the spoken information available to the application.

The LISTEN cell facilitates speech recognition for applications that require large vocabularies (as opposed to the GDAT cell, which is geared toward applications using small vocabularies), rely on vendor-specific attributes from different packages at different points in the application, or depend on vendor-specific functionality.

This cell can direct an ASR application to perform any of the following ASR functions:

- Evaluate multiple results with associated confidence levels.
- Support DTMF functionality.
- Format returned results.
- Direct rejected responses.
- Report exceptions if the response is too soon, too short, too long, too loud, too soft, or is an unrecognized value.

  Note: In order to perform speech recognition, ensure that your application includes a VINP cell before the LISTEN cell. Including a LANG cell before the VINP cell is also recommended. Refer to the Introduction in the Release 4.0 *Symposium OPEN IVR Cell Catalog* for an example of using a LANG cell, a VINP cell, and a LISTEN cell. The LANG cell specifies the language of the default vocabulary in use at the time of the speech recognition. Since this functionality can be implied by a VINP cell, inclusion of the LANG cell is not mandatory, but is recommended to make an application easier for the application programmer to follow. For example, you can specify in the LANG cell that the recognized language is French.

The VINP cell specifies a particular set of words, a subvocabulary, within the language specified, which the application recognizes. Continuing with the example, setting the vocabulary in VINP determines that the recognized word for “yes” is “oui.” Therefore, the application will not recognize “si,” “ya,” and “yes,” since none of the languages that include these words were specified in the LANG cell.

Buffers used

None

Buffers updated

INPUT METHOD, EXCEPTION STATUS, NUMBER OF RESULTS, buffers supplied in the Result Table and buffers supplied in the Confidence Table

Parameters

Parameters	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell logs the following information to the call audit statistics file `(audit_stat.d)`:
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameters	Initial value	Explanation
Format of Results	TEXT	A value that indicates the type of post-process formatting to perform on the results. The options follow: TEXT - eliminate vendor-specific cues TAGS - return only tagged words FULL - perform no processing INDEX - map results to an index ID TIME_DATE - return date and time in a canonical format
PreSpeech Timeout (seconds)	5	The time, in seconds, in which a caller must start to speak a response.
Timeout (seconds)	15	The time, in seconds, in which the caller must speak a response to the recognizer.
Timeout Prompt	56 “That is an invalid response”	Buffer or Prompt ID. The ID of the prompt designated to play to the caller if a time-out occurs.
Number of Timeout Retries	2	Number of times the caller may try again after a time-out.
DTMF Used For	DATA	A value that specifies the use of DTMF input. The options are as follow: Control: Regard key input as CONTROL for aborting play, changing the play speed, or skipping over part of the play, but still allow recognition to take place. Data: Regard key input as DATA. ***Note:*** If the LISTEN cell regards DTMF as Data, Generations RSP places the digit entered into the DIGITS buffer.

Parameters	Initial value	Explanation
Method of Input Detected	INPUT METHOD	The method by which data was obtained. Valid values are 0 (for VOICE) or 1 (for DTMF).
Exception Status	EXCEPTION STATUS	The buffer designated to capture the Exception Status codes of the recognition. The specific meanings of these exceptions are ASR-technology dependent. The Release Note for each specific ASR option contains more information. Exceptions include the following: 0 None 1 Too soon 2 A bit soft 3 Too soft 4 A bit loud 5 Too loud 6 Too short 7 Too long 1000 The ASR technology configured in the MRS does not recognize the value specified in the parameter `Form of Results`.
Requested Number of Results	1	The number of results anticipated by the application.
Actual Number of Results	NUMBER OF RESULTS	The buffer used to capture the number of valid results returned in the RESULTS table.
Input Digit	DIGITS	The buffer used to capture a DTMF digit if the LISTEN cell regards DTMF as DATA.

Parameters	Initial value	Explanation
Number of Prompts	1	Buffer or value that specifies the number of prompts listed in the Prompt Table that the cell should play to the caller.
Buffer Count for Result Buffers	0	Buffer or value that specifies the number of buffers supplied to capture the results. OPEN IVR AP software automatically calculates this number and places it in the buffer.
Buffer Count for Confidence Buffers	0	Buffer or Value which specifies the number of buffers supplied to capture the associated Confidence Levels. OPEN IVR AP software automatically calculates this number and places it in the buffer.

Next branch

Next branch	Explanation
Error	An error occurred. Either the application could not recognize speech input, or it could not locate one or more prompts in the Prompt Table.
Timeout	The application could not detect any speech or DTMF data in the allotted time period, and it exhausted the number of timeout retries allowed.
Rejection	The application successfully received the speech input, but could not match it to any of the allowable utterances.
Success	The application played the prompts, and either successfully recognized speech input from the caller, or successfully received Touch-Tone input.

Tables

Table	Explanation
Prompts	The prompts played to the caller to solicit speech input, specified as either Prompt IDs or buffer names.
Results	A list of buffers that captures recognition results as either strings of characters or numeric IDs.
Confidence Levels	A list of buffers that captures the confidence levels as percentages, which indicate the perceived accuracy of the corresponding result.

MATH - Mathematical Operations cell

MATH performs one of the following mathematical operations: add, subtract, multiply, divide, or remainder. The math operation identified by the Operation Flag is performed on two operands that are buffers or constant values. These values are not validated for overflow. In order to successfully complete the math operation, the buffers or constant values for the two operands cannot exceed MAXLONG. The value of MAXLONG is determined by your system type and typically cannot be set by the user. The result of the operation is checked for overflow. If overflow occurs, then the MATH cell takes the error branch. The result is stored in the Result Buffer.

You can use the MATH cell only with numerical values represented as buffers or constants. Only integer results are possible; consequently, when the operation is division, only the whole number is stored in the Result Buffer. The MATH cell can perform mathematical operations on integers from -MAXLONG to MAXLONG, depending upon your operating system.

Buffers used

MATH uses Buffer A and Buffer B.

Buffers updated

RESULT Buffer is updated with the result of the math operation.

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial Value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bits.
Buffer A (Or Value)	DIGITS	The first operand. This can be a buffer (either a system buffer or a user-defined buffer) or a constant value. The maximum value is MAXLONG.
Operation Flag	+	The operation to be performed. The valid operators are **{+ - * / %}**
Buffer B (Or Value)	0	The second operand. This can be a buffer (either a system buffer or a user-defined buffer) or a constant value. The maximum value is MAXLONG.
Result Buffer	DIGITS	A buffer in which the result of the mathematical operation is stored. This can be a system buffer or a user-defined buffer.

Next branch

Next branch	Explanation
Error	The operation was not successful.
Success	The operation was successful.

Tables

None

MENU - Play Menu And Get Data cell

MENU plays a menu to the caller, accepts the caller's menu selection, checks the Valid Input Table to find the next cell corresponding to the selection, and then branches to the next cell. The menu selection must be a single digit that the caller enters by pressing a telephone key. If the menu selection cannot be found in the Valid Input Table, the application branches to the Invalid Input next cell. If the caller does not enter a digit within the time limit set by the `Input timeout` parameter, a timeout occurs and the caller hears the invalid input prompt.

> ***Note:*** If a LANG cell precedes the MENU cell in execution, then all the prompts listed in the Play Prompt table and "invalid input prompt" field are offset.

MENU has a feature that allows the caller to try again after entering invalid input. The `# of Invalid Input Retries` parameter determines the maximum number of times that the caller can enter invalid input. If the caller exceeds the maximum number of invalid input retries, the application will branch to the timeout next cell.

The `Abort Play On Input` parameter controls what happens if the caller tries to enter input while a prompt is being played. If this parameter is set to "Yes," then a caller who is familiar with the application can skip through the prompts by pressing digits that the application is going to request. The `Abort Play on Input` feature has no effect when speech recognition has been enabled through the VINP cell.

The `Allow Overdialing` parameter determines whether input will be buffered from one cell to another. If `Allow Overdialing` is set to "No" then the input buffer will be cleared before MENU makes a request for input. If `Allow Overdialing` is set to "Yes," the input buffer is not cleared and the request for input includes any digits existing in the input buffer.

For example, if there are two cells that both require a single digit of input, and if the `Allow Overdialing` parameter is set to "Yes" on the second cell, then the caller can press two digits in quick succession at the first cell and the second digit will be saved until the second cell needs it. If the `Abort Play on Input` parameter is also set to "Yes," the caller will not even hear the prompt for the second cell. The Overdialing feature has no effect when speech recognition has been enabled through the VINP cell.

Speech Recognition support

If a VINP cell is executed prior to a MENU, it will be possible to collect digits in the form of input to the cell. If a DTMF digit is detected first, then only DTMF digits will be returned to the cell.

In addition to recognizing voice input, the MENU cell can also indicate how well the hardware recognized the voice input. The confidence level of the transaction is placed in the CONFIDENCE LEVEL buffer of the MENU cell. The confidence level buffer is RESULT by default. This is a number from 0 to 9 that represents the percentage confidence that the hardware had in recognizing the specific digit(s) returned to the application. This value is available for future processing by the application through the CONFIDENCE LEVEL Buffer.

For further information, see Appendix B, "Internationalization and Customization," of the Release 4.0 *Symposium OPEN IVR Application Development Guide*.

The value that is specified for the Interdigit timeout in the default cell is used to determine how long to wait for a speech recognizer resource if one is not immediately available. If this time is exceeded without a resource becoming available, the error branch is taken. The Interdigit timeout value specified in the START cell is the time limit default for how long to wait for the first digit to be entered.

> ***Note:*** When speech recognition is enabled, the `Abort on input` and `Overdialing Yes/No` fields of the MENU and GDAT cells will not be applicable.

Note: If a LANG cell precedes the MENU cell in execution, then all the prompts listed in the Play Prompt table and timeout Prompt Parameter are offset in the following manner:

Prompt Value	Offset Used from LANG cell
0–499	System prompts offset
500-highest prompt listed in the System Configuration Management Screen	Application prompts offset
All others	Remain unchanged

Buffers used

None

Buffers updated

MENU updates the buffers DIGITS, NUMBER OF DIGITS, and RESULT. DIGITS contains the digit obtained from the caller. NUMBER OF DIGITS contains the number of digits obtained from the caller. For MENU, the number of digits will always be 1. The buffer RESULT contains the confidence level for speech recognition.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Use Voice Energy Detect (Y/N)	NO	Will the voice confirmation feature be enabled?
Invalid Input Prompt	56 “That is an invalid response”	The prompt the caller will hear after entering invalid input. The initial value, prompt 56, says “That is an invalid response.” This can be a prompt number or a buffer.
Number Of Invalid Input Retries	3	The maximum number of times the caller can enter invalid input and incur a timeout before the application branches to the timeout next cell.
Timeout Prompt	56 “That is an invalid response”	The prompt automatically played if the caller has not entered a digit before the input timeout occurs. The initial value, prompt 56, says “That is an invalid response.” This can be either a prompt number or a buffer.
Input Timeout (seconds)	15	The time, in seconds, after the prompt that the caller has to enter a digit before a timeout occurs. This value cannot be larger than the Interdigit timeout value on the Default Cell screen. If you enter “0,” the caller has the entire time it takes to play all of the prompts specified in the cell’s Play Prompt Table to enter the required digits.
Number Of timeout Retries	3	The number of times that the caller can try again after exceeding the Input timeout value or the Interdigit timeout value.

Parameter	Initial value	Explanation
Abort Play On Input	YES	Should playback be aborted if the caller tries to enter input during playback? Not valid for speech recognition mode.
Allow Overdialing	NO	Are digits allowed to accumulate from one cell to the next?
Confidence Level	RESULT	The buffer that captures the resulting confidence level (0–10) from a speech recognition execution.
Number Of Prompts (max 5)	1	How many prompts to play to the caller. Can be specified as a number or a buffer. The prompt numbers must be listed in the Play Prompt Table. If the voice confirmation feature is to be used, at least one prompt must be played.

Next branch

Next branch	Explanation
Error	One or more of the prompts listed in the Play Prompt Table does not exist or, if speech recognition is enabled, a free speech recognizer could not be found, or vocabulary VINP or LANG could not be found.
Invalid Input	The caller's menu selection could not be found in the Valid Input Table.
Timeout	The Number of Timeout Retries has been exceeded.

Note: If the caller's input (menu selection) is found in the Valid Input Table, then the next cell is taken from the Valid Input Table.

Tables

Table	Explanation
Play Prompt Table	The prompts to be played to the caller. Can be specified as prompt numbers or as buffer names.
Valid Input	A list of all valid inputs (menu selections). If the voice confirmation feature is to be used, then 0 and 1 must be listed as valid inputs.

MSGS - Get Message List cell

MSGS accesses a mailbox having a specified mailbox ID and password. If the mailbox is found, MSGS counts the messages and then stores the number in the specified buffer so a PDAT (Play Prompts with Data) cell later in the application can read the count to the caller.

Once the mailbox has been accessed by MSGS, the application can use a GMSG (Get a Message) cell to retrieve its messages one at a time. Once a message is retrieved, it is available to CMSG (Copy Message), DMSG (Delete Message), and PMSG (Play a Message) cells.

If no mailbox with the specified mailbox ID is found, MSGS can create one, assign it the password specified by the PASSWORD buffer, and then access it. If no password is found in the PASSWORD buffer, then the new mailbox will not be assigned a password.

Buffers used

MSGS uses the buffers specified by the `Password` and `Mailbox ID` parameters.

Buffers updated

MSGS updates the buffer specified by the `Number of Messages` parameter.

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial Value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Password	PASSWORD	The buffer containing the password associated with the mailbox. Can be a system buffer or a user-defined buffer.
Mailbox ID	MAILBOX ID	The buffer that contains the ID number of the mailbox to access. Can be a system buffer or a user-defined buffer. The contents of this buffer cannot exceed 5 characters.
Create Flag (Y/N)	YES	Should OPEN IVR create a mailbox if one with the specified mailbox ID does not already exist?
Number Of Messages	NUMBER OF MESSAGES	The buffer that stores the number of messages found in the mailbox. Can be a system buffer or a user-defined buffer.

Next branch

Next branch	Explanation
DB Error	The mailbox has not been found or could not be created.
Invalid ID	The mailbox ID is invalid.
Bad Password	The password is invalid.
No Messages	The mailbox has been accessed but there are no messages in it.
Success	The mailbox has been accessed and there are messages in it.

Next branch	Explanation
Created	A new mailbox has been created and accessed. This branch can be taken only if the `Create Flag` parameter has been set to “Yes”.

Tables

None

PDAT - Play Prompts with Data cell

PDAT plays prompts that announce the information in a buffer. The buffer is read according to the specified type. For example, if the buffer contains the number 0102 and the type is date, the number will be read as “January second;” if the type is number, the number will be read as “one hundred two;” and if the type is digits, the number will be read as “zero one zero two.” (This is true if there is not a LANG cell preceding the PDAT cell, or if the LANG cell specifies a language of English.)

> ***Note:*** PDAT uses system prompts. They must already have been installed on the MRS before PDAT can function. See Appendix A of either the Release 4.0 *Symposium OPEN IVR Application Development Guide* or the *Symposium OPEN IVR System Administration Guide* for a list of system prompts. If your application supports multiple languages, then a copy of the system prompts must exist on the MRS for each language supported.

PDAT can read alphanumeric characters. However, if the type is numeric, and the buffer holds data other than a number, PDAT takes the INVALID DATA branch. Furthermore, if the input format does not match the format of the data type specified, PDAT takes the INVALID DATA branch. For example, if the type is date and the digits are not valid for dates, then PDAT takes the INVALID DATA branch. You should note the specific input formats described here.

The format for date is either *mmdd* (2 digits for the month and 2 digits for the day — 4 digits altogether) or *mmddyyyy* (2 digits for the month, 2 digits for the day, and 4 digits for the year — 8 digits altogether). Only the first four digits, which are the digits for the month and day, will be read.

The format for time is *hhmm* (2 digits for the hour and 2 digits for the minute — 4 digits altogether).

The format for date and time is *mmddyyyyhhmm* (2 digits for the month, 2 digits for the day, 4 digits for the year, 2 digits for the hour, and 2 digits for the minute — 12 digits altogether. A 24-hour clock is used. The year will not be read.

Designating the day of the week. There are three options available for designating the day of the week:

1 A string containing the data to be converted as a number between 0 and 7, where either 0 or 7 will be played as Sunday, 1 as Monday, 2 as Tuesday, 3 as Wednesday, 4 as Thursday, 5 as Friday, and 6 as Saturday.

2 A string containing the data to be converted in uppercase or lowercase character(s) with one of the following values: (SU, M, TU, W, T, F, S), where SU will be played as Sunday, M as Monday, TU as Tuesday, W as Wednesday, T as Thursday, F as Friday, and S as Saturday.

3 The same format for designating the date. OPEN IVR takes this information and calculates and plays the day of the week represented by the date supplied.

Military format is designated with a string in the format *hhmm*, where *hh* represents the hour of the day (00–23) and *mm* represents the minutes in an hour (00–59).

The string containing data to be read as dollars must be composed of digits.

The string containing data to be converted to dollars with cents must be composed of digits and be in the format d.cc. The decimal point is optional — if it is not present, OPEN IVR will substitute .00 for the cents portion of the value.

The format for a fraction is *n/d*, where *n* is a string of digits (0 through 9) representing the numerator, and *d* is a string of digits (0 through 9) representing the denominator. The delimiter between the numerator and denominator must be a /.

The format for floating point is *w.f*, where *w* is a string of digits (0 through 9) representing the whole number portion of the floating point number, and *f* is a string of digits (0 through 9) representing the fractional portion of the floating point number. If the floating point type is selected, a decimal point can be represented by either a period or a comma. The decimal point is optional, however, and if it is not present, OPEN IVR will substitute 0 for the fractional portion of the value. For floating point numbers, PDAT does not play insignificant trailing zeros.

Note: OPEN IVR regards a zero immediately following the decimal point as significant.

Introductory prompts can be played before the number is read.

The `Abort Play on Input` parameter controls what happens if the caller tries to enter input while a prompt is being played. If this parameter is set to Yes, then a caller who is familiar with the application can skip through the prompts by pressing digits that the application is going to request.

The `Allow Overdialing` parameter determines whether input will be buffered from one cell to another. If `Allow Overdialing` is set to "No" then the input buffer will be cleared before the execution of the PMSG cell. Any digits that are entered and are not retrieved by a GDAT or a MENU cell are lost. Any digits that are entered during the execution of the PMSG cell are saved. If `Allow Overdialing` is set to "Yes," the input buffer is not cleared and any digits that are entered in previous cells and are not retrieved by a GDAT or a MENU cell are saved. Any digits that are pressed during the execution of the PMSG cell are saved.

For example, if there are two cells that both require a single digit of input, and if the `Allow Overdialing` parameter is set to "Yes" on the second cell, then the caller can press two digits in quick succession at the first cell and the second digit will be saved until the second cell needs it. If the `Abort Play on Input` parameter is also set to "Yes", the caller will not even hear the prompt for the second cell before the response is made from the input buffer.

Hang ups not detected. If a caller hangs up instead of entering digits, the PDAT cell does not recognize the hangup, and the cleanup branch is not taken. When using this cell, include cells that check the number of digits in your application. This way, if a customer hangs up, these cells recognize the hangup and route it to the HANG cell.

Multilingual support

PDAT supports multilingual applications by playing prompts in multiple languages and additionally formatting the data to be played in a manner that is grammatically correct for a specific language. The language that PDAT uses to play data in is based on the language selected in the Language field of the LANG cell. If a LANG cell does not precede the PDAT cell, then the PDAT cell will use the English language.

PDAT will format multilingual data for the types Date, Time, Dat, and Time, Date with Year, Dollars, Dollars and Cents, Floating Point, Digits, and Number.

> ***Note:*** If a LANG cell precedes the PDAT cell in execution, then all the prompts listed in the Play Prompt table and `Timeout Prompt` parameter are offset in the following manner:

Prompt Value	Offset Used from LANG Cell
0–499	System prompts offset
500-highest prompt listed in the System Configuration Management Screen	Application prompts offset
All others	Remain unchanged

Buffers used

PDAT uses the buffer specified by the `Data Buffer` parameter.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Abort Play On Input (Y/N)	NO	Should playback be aborted if the caller tries to enter input during playback?
Allow Overdialing (Y/N)	NO	Are digits allowed to accumulate from one cell to the next?

Parameter	Initial value	Explanation

Data Type	TIME	The format for the number. Valid data types are as follows:
		`Digits`
		`Number`
		`Date`
		`Time`
		`Date and Time`
		`Date with Year`
		`Military Time`
		`Day of Week`
		`Dollars`
		`Dollars and Cents`
		`Fractions`
		`Floating Point`
		`Alphanumeric`

Data Buffer	DIGITS	The buffer containing the number to be read. The number must be valid for the data type. The buffer can be a system buffer or a user-defined buffer. The value of this buffer cannot exceed 32 characters minus the number of introductory prompts that are used.
Number Of Prompts (max 5)	0	How many introductory prompts to play before the number is read. Can be specified as a number or a buffer. The prompt numbers must be listed in the Play Prompt Table.

Next branch

Next branch	Explanation
Error	One or more of the introductory prompts do not exist or could not be played.
Inv Data	The data input is not valid for the format specified.
Success	The number has been read.

Note: PDAT accepts a negative sign at both the beginning and end of a string, thereby allowing negative values for DOLLARS, DOLLARS & CENTS, FLOATING POINT, and FRACTIONS.

Tables

Table	Explanation
Prompt Table	The introductory prompts that will be played to the caller. Can be specified as prompt numbers or as buffer names.

PLAY - Play Prompts cell

PLAY plays prompts to the caller. A maximum of 32 prompts can be played. The caller may halt playback temporarily by pressing the Pause Digit and then resume playback by pressing the Resume Digit. The `Maximum Pause Time` parameter limits the pause time; if the caller does not press the Resume Digit within this limit, playback ends and the call takes the success branch.

> ***Note:*** If a LANG cell precedes the PLAY cell in execution, then all the prompts listed in the prompt table as well as the prompts used to play data passed to the PLAY cell are offset as specified when you set up your prompt numbering scheme in the LANG cell. Refer to the following table:

Prompt value	Offset used from LANG cell
0–499	System prompts offset
500-highest prompt listed in the System Configuration Management Screen	Application prompts offset
All others	Remain unchanged

> ***Note:*** If a VNIP cell precedes the PLAY cell in execution, the PLAY cell takes the error branch even if the system can play the prompts to the caller.

Hang ups not detected. If a caller hangs up instead of entering digits, the PLAY cell does not recognize the hangup, and the cleanup branch is not taken. When using this cell, include cells that check the number of digits in your application. This way, if a customer hangs up, these cells recognize the hangup and route it to the HANG cell.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Pause Allowed?	YES	Is the caller allowed to pause playback by pressing the pause key?
Pause Digit	DEFAULT	The key that the caller can press to pause playback of the prompts. Valid only if pausing is allowed. DEFAULT is the pause digit from the Default Cell Parameter page.
Resume Digit	DEFAULT	The key that the caller can press to resume playback of the prompts. Valid only if pausing is allowed. DEFAULT is the resume digit from the Default Cell Parameter page.
Skip Ahead Digit	DEFAULT	The key that the caller can press to skip ahead playback of the prompt. DEFAULT is the skip ahead digit from the Default Cell Parameter page.

Parameter	Initial value	Explanation
Back Track Digit	DEFAULT	The key that the caller can press to rewind playback of the prompt. DEFAULT is the back track digit from the Default Cell Parameter page.
Skip To End Digit	DEFAULT	The key that the caller can press to go to the end of the prompt being played. DEFAULT is the skip to end digit from the Default Cell Parameter page.
Back To Beginning Digit	DEFAULT	The key that the caller can press to go to the beginning of the prompt being played. DEFAULT is the back to beginning digit from the Default Cell Parameter page.
Speedup Digit	DEFAULT	The key that the caller can press to speed up the playback of the prompt. DEFAULT is the speedup digit from the Default Cell Parameter page.
Slowdown Digit	DEFAULT	The key that the caller can press to slow down playback of the prompt. DEFAULT is the slowdown digit from the Default Cell Parameter page.
Maximum Pause Time (1 – 75 sec)	15	The maximum length of time, in seconds, that playback can be paused. If this value is exceeded, playback is terminated. Valid only if pausing is allowed.
Skip Ahead/Back Track Time (2 – 30 sec)	2	The length of time, in seconds, that playback can be skipped or backtracked at one time.
Number of Prompts	1	How many prompts to play to the caller. Can be specified as a number or a buffer. The prompt numbers must be listed in the Play Prompt Table. The maximum value is 32 prompts.

Next branch

Next branch	Explanation
Error	One or more of the prompts listed in the Play Prompt Table does not exist or the PLAY cell is preceded by a VINP cell.
Success	The prompts were played back successfully.

Tables

Table	Explanation
Play Prompt Table	The prompts that will be played to the caller. Can be specified as prompt numbers or as buffer names.

PMSG - Play a Message cell

PMSG plays a message to the caller.

PMSG plays the current message — that is, the message whose number is in the CURRENT MESSAGE buffer. If the message has just been recorded, it is already the current message. A stored message can become the current message if MSGS (Get Message List) is used to access the mailbox in which it is stored, and then GMSG (Get a Message) is used to retrieve it.

The caller may halt playback temporarily by pressing the Pause Digit and then resume playback by pressing the Resume Digit. The `Maximum Pause Time` parameter limits the pause time; if the caller does not press the Resume Digit within this limit, playback ends and the call takes the success branch.

Instead of pausing playback, the caller may end it by pressing the Termination Digit.

> ***Note:*** If a LANG cell precedes the PMSG cell in execution, then all the prompts listed in the Play Prompt table and `Timeout Prompt` parameter are offset in the following manner:

Prompt value	Offset used from LANG cell
0–499	System prompts offset
500-highest prompt listed in the System Configuration Management Screen	Application prompts offset
All others	Remain unchanged

Buffers used

The buffer CURRENT MESSAGE contains the number of the message that is to be played.

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameter	Initial Value	Explanation
Pause Allowed?	YES	Is the caller allowed to pause playback by pressing the pause key?
Pause Digit	DEFAULT	The key that the caller can press to pause playback of the prompt. Valid only if pausing is allowed. DEFAULT is the pause digit from the Default Cell screen.
Resume Digit	DEFAULT	The key that the caller can press to resume playback of the prompt. Valid only if pausing is allowed. DEFAULT is the resume digit from the Default Cell screen.
Skip Ahead Digit	DEFAULT	The key that the caller can press to skip ahead playback of the message. DEFAULT is the skip ahead digit from the Default Cell screen.
Back Track Digit	DEFAULT	The key that the caller can press to rewind playback of the message. DEFAULT is the back track digit from the Default Cell screen.

Parameter	Initial Value	Explanation
Skip To End Digit	DEFAULT	The key that the caller can press to go to the end of the message being played. DEFAULT is the skip to end digit from the Default Cell screen.
Back To Beginning Digit	DEFAULT	The key that the caller can press to go to the beginning of the message being played. DEFAULT is the back to beginning digit from the Default Cell screen.
Speedup Digit	DEFAULT	The key that the caller can press to speed up the playback of the message. DEFAULT is the speedup digit from the Default Cell screen.
Slowdown Digit	DEFAULT	The key that the caller can press to slow down playback of the message. DEFAULT is the slowdown digit from the Default Cell screen.
Maximum Pause Time (1 – 75 sec)	15	The maximum length of time, in seconds, that playback can be paused. If this value is exceeded, playback is terminated. Valid only if pausing is allowed.
Skip Ahead/Back Track Time (2 – 30 sec)	2	The length of time, in seconds, that playback can be skipped or backtracked at one time.
Termination Digit	DEFAULT	The key that the caller can press to terminate playback. DEFAULT is the termination digit from the Default Cell screen.

Next branch

Next branch	Explanation
Error	The message could not be played or does not exist.
Success	The message was played back successfully.

Tables

None

PNAME - Play Name cell

The PNAME cell plays a named file to the connected caller. You can use the PNAME cell to play utterances captured using the `Store Speech As Utterance` parameter of the LISTEN cell. Ensure that the file exists on the MRS and that the full path name to that file is included in the buffer listed in the LISTEN cell `Utterance File Name` parameter.

Buffers used

The PNAME cell uses the buffer specified by the parameter `File Name`.

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call AuditInformationbuffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameter	Initial Value	Explanation
Fast Play	NO	Determines if this cell speeds up the playing of the named file. If this parameter is set to “Yes”, playing is increased to the fastest speed.
VSN to Map	0	The VSN # the system maps to the file being played.
File Name	DATA EXCHANGE 2	The buffer or string used to capture the full path name for the recorded utterance. This parameter stores the full path and file names.

Branch

Branch	Explanation
Error	The specified file does not exist.
Success	The file was played back successfully.

Tables

None

QCMD - SQL Command cell

The QCMD cell interfaces with a relational DBMS and allows you to use free-form SQL statements and stored procedures that are supported by a specific database. The QCMD cell either returns the number of rows in a database table or view that matches specific selection criteria, or performs a command and returns zero rows.

Buffers used

Any of the values that you list in the parameters `Parameter Buffers` and `Return Buffers` may be OPEN IVR buffer names.

Buffers updated

QCMD updates the buffer SQL ROW with the number of rows matching the selection criteria.

If an error occurs, QCMD updates the buffer SQL ERROR.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameter	Initial value	Explanation
Commit?	Yes	The default setting is “Yes”. When set to “No,” this parameter allows a series of SQL statements in QCMD cells to be strung together to form a multi-statement transaction. If, however, you set the parameter `Commit` to “No,” and follow the QCMD cell with another type of SQL cell such as QSEL, the transaction is automatically transmitted after you exit from the other SQL cell.
Maximum Rows to Select	1	This parameter allows you to specify the maximum number of rows you want the QCMD cell to return, from 0 to 100. For no limit to the number of rows, select 0. The default value is 1. The first row is returned by the QCMD cell. Subsequent rows are returned by the QROW cell, typically in a loop.
SQL Statement	No initial value	Use this text field to enter in your SQL statement(s). Parameters that are supplied at runtime are marked with question marks. Backslashes quote question marks and allow for their literal use. Values marked by question marks are replaced by the parameter `Parameter Buffers` in the same order in which they are entered. For example, the first question mark corresponds to the first value listed in the parameter `Parameter Buffers`, and the second question mark corresponds to the second value. Refer to the Release 4.0 *Symposium OPEN IVR SQL Server User Guide* (P0881282) for additional information.

Parameter	Initial value	Explanation
Parameter Buffer Count	Not Applicable	Enter the values of your specific query in this parameter. Use these parameters for your input. For example, if you need to query the database for the names of all the employees of a certain department, then you need to specify the department in one of the fields in the parameter `Parameter Buffers`. The default value for this buffer is 0; the maximum value is 16.
Return Buffer Count	Not Applicable	The parameter `Return Buffers` specifies where the retrieved values from the database are placed. Use this parameter for the output from the database. The default value for this buffer is 0; the maximum value is 16.

Next branch

Next branch	Explanation
Fail	The QCMD cell is not able to perform the SQL transaction specified in the parameter SQL Statement. Inspect the buffer SQL Error Code for details about the error condition. You can also inspect the Generations transaction log and the RDBMS error log for more information about a failed transaction.
No Rows	No rows are affected or retrieved.
Column Mismatch	If you supply more or less buffers than columns in the specified select query, then the cell takes the branch Column Mismatch.
Success	The cell successfully performs the SQL statement specified in the parameter SQL Statement.

Tables

Table	Explanation
Parameter Buffer Table	Lists the name of each parameter buffer. If you specify buffers, then the total of all data for the parameter buffer table cannot exceed 1920 characters. You cannot enter values directly into this table.
Return Buffer Table	Lists the name of each return buffer.

QCNT - SQL Select Count cell

The QCNT cell interfaces with a relational DBMS to execute an SQL Select Count statement that returns the number of rows in a database table or view matching specific selection criteria. Upon successful completion of the cell, the SQL ROWS system buffer will contain the number of rows that were found.

Buffers used

Buffers can be used in a “where” clause.

Buffers updated

QCNT updates the buffer SQL ROWS with the number of rows matching the selection criteria. If an error occurs, QCNT updates the buffer SQL ERROR.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
SQL Table Name	“ ”	The name of the table, view, or a buffer containing the name for which the Select Count is being requested.

Next branch

Next branch	Explanation
Fail	An error occurred while processing this cell transaction. The system buffer SQL ERROR will contain the error code returned by the DBMS.
No Rows	No rows in the table or view meet the WHERE clause criteria. The system buffer, SQL ROWS, is set to zero.
Success	The function has been successfully performed. The system buffer, SQL ROWS, will contain the number of rows that were found.

Tables

Table	Explanation
WHERE Clause	The WHERE clause table identifies the conditions against which the transaction will be matched. The WHERE clause table consists of the following fields: TYPE: Value field data type (STRING, NUMERIC, MONEY, DATE, FLOAT) LOGICAL: Logical operator (AND, OR, NOT) (‘s: Left parenthesis type COLUMN: SQL column name or SQL expression OPERATOR: Operator (<, =, >, <=, >=, !=) VALUE: Value or buffer)’s: Right parenthesis type

QDEL - SQL Delete cell

The QDEL cell interfaces with a relational DBMS to execute an SQL delete statement. This transaction removes one or more rows from a specified database table. The rows to be deleted are selected according to the criteria you specify in the “WHERE Clause” table. Upon successful completion of the cell, the SQL ROWS system buffer will contain the number of rows deleted.

Buffers used

Buffers can be used in “where” clause.

Buffers updated

QDEL updates the buffer SQL ROWS with the number of rows deleted. If an error occurs, QDEL updates the buffer SQL ERROR.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file `(audit_stat.d)`:
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
SQL Table Name	“ ”	The name of the table, view, or a buffer containing the name for which the Delete is being requested.

Next branch

Next branch	Explanation
Fail	An error has occurred. The system buffer SQL ERROR will contain the error code returned by the DBMS.
No Rows	No rows in the specified table or view meet the WHERE clause criteria. The system buffer SQL ROWS is set to zero.
Success	The delete rows transaction was successful. The system buffer SQL ROWS will contain the number of rows that have been deleted.

Tables

Table	Explanation
WHERE Clause	The WHERE clause table identifies the conditions against which the transaction will be matched. The WHERE clause table consists of the following fields: TYPE: Value field data type (STRING, NUMERIC, MONEY, DATE, FLOAT) LOGICAL: Logical operator (AND, OR, NOT) ('s: Left parenthesis type COLUMN: SQL column name or SQL expression OPERATOR: Operator (<, =, >) VALUE: Value or buffer)'s: Right parenthesis type

QINS - SQL Insert cell

The QINS cell interfaces with a relational DBMS to execute an SQL Insert statement. QINS adds a row to a specific database table, according to the "Column and Value" table you specify.

Buffers used

Any of the values that you list in the "Column and Value" table may be OPEN IVR buffer names.

Buffers updated

If an error occurs, QINS updates the buffer SQL ERROR.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file `(audit_stat.d)`:
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
SQL Table Name	" "	The name of the table or view from which a row of data will be added.

Next branch

Next branch	Explanation
Fail	An error occurred while processing this transaction. The system buffer SQL ERROR will contain the error code returned by the DBMS.
Success	A row has been added to the specified database table with the values listed in the “Column and Value” table.

Tables

Table	Explanation
Column and Value	A list of column names and the corresponding values for the row being inserted in the database table.
TYPE	Value field data type (STRING, NUMERIC, MONEY, DATE, FLOAT)

QROW - SQL Retrieve Row cell

The QROW cell is only useful when used after a QSEL cell or a QCMD cell that performs an SQL SELECT statement. The QROW cell sorts through the multiple rows returned by either the QSEL cell or the QCMD cell and then retrieves up to one complete row from these returned rows. The data reflects the information when the QSEL or the QCMD cell is executed, and it does not reflect any changes until a new QSEL cell or QCMD cell is initiated. The data that is retrieved by the QROW cell is valid until another QSEL cell is executed or a SELECT statement is issued in the QCMD cell.

Buffers used

None

Buffers updated

If an error occurs, QROW updates the buffer SQL ERROR. Output Buffers contain returned rows.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameter	Initial value	Explanation

Direction	NEXT	Determines which next row this cell retrieves. The options are as follows:
		`Next`
		`Previous`
		`First`
		`Last`

Output Buffer Count	0	Buffer count is the number of columns you are expecting. The QROW cell then fills in each buffer. The maximum value is 16. This field must have the same value as the QSEL parameter “Maximum Rows To Select”.

Next branchs

Next branch	Explanation
Fail	An error occurred while processing this transaction.
No Row	There are no retrievable rows available.
Not Ready	This branch indicates that the SQL server is retrieving the next row(s), but has not yet completed this action. This provides the application an opportunity to play a message and then retry the cell.
Success	One or more rows matched the WHERE clause criteria. The system buffer SQL ROWS is set to 1.

Tables

Table	Explanation
Output Buffer Tables	The names of the buffers where output will be placed.

QSEL - SQL Select cell

The QSEL cell interfaces with a relational database DBMS to execute an SQL Select statement that retrieves multiple rows of data from a database table or view. The columns to be selected and the buffers into which the values should be returned are identified in the “Column and Buffer” table. You specify the selection criteria for the retrieval in the “WHERE Clause” table. Although there is no limit to the number of rows that an SQL Select statement can return, the QSEL cell returns the values for only the first row that matches the selection criteria. Use the QROW cell to access subsequent rows, typically in a loop.

Retrieving Information With QSEL (SQL Select)

You can use the QSEL cell to retrieve multiple rows of data from a database. The QSEL cell returns all rows that match the criteria you specify on the QSEL Parameter Page, up to the maximum number specified in the `Maximum Rows to Select` parameter. The QSEL parameters identify the table or view to be accessed, the columns from which values should be returned, and the WHERE clause selection criteria. You can specify the next cell based on the number of rows selected, whether an error occurs, or if a row is successfully returned. Once the QSEL cell returns multiple rows, you can use the QROW cell to access the remaining rows returned.

Refer to the Introduction in the Release 4.0 *Symposium OPEN IVR Cell Catalog* for an example of a QSEL parameter page, which illustrates the values you specify in the cell parameters when you set up the QSEL cell.

Maximum Rows to Select

The `Maximum Rows to Select` field allows you to specify the maximum number of rows you want the QSEL cell to return, from 0 to 100. For no limit to the number of rows, select 0. The default value is 1.

The first row is returned by the QSEL cell. Subsequent rows are returned by the QROW cell, typically in a loop.

Order By Row

SQL databases will sometimes return rows in different orders. This creates problems for applications that depend on rows returned in a consistent manner. The `Order By` parameters in the Column and Buffer Table section of the Parameter Page allow you to specify the order of the rows returned by the QSEL cell. To select a sorting option, click on the desired option in the Order By menu. Your sorting options are: Ascending, Descending, and None. The default value is None.

Buffers used

Buffers can be used in a “where” clause.

Buffers updated

Column values for the row matching the WHERE clause selection criteria will be returned into the specified buffers.

If an error occurs, the buffer SQL ERROR will be updated with the error code returned by the DBMS. The buffer SQL ROWS will contain the number of rows returned by the transaction.

Parameter

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
SQL Table name (Buffer/Value)	“ ”	The name of the table or view from which a row of data will be selected.
Maximum Rows to Select	1	Determines the maximum number of matching rows for the QSEL cell to retrieve. The first row is returned by the QSEL cell. Subsequent rows are returned by the QROW cell, typically in a loop. This parameter must be the same as QROW parameter “Output Buffer Content”.

Next branch

Next branch	Explanation
Fail	An error occurred while processing this transaction. The system buffer SQL ERROR will contain the error code returned by the DBMS.
No Rows	No rows in the table or view meet the WHERE clause criteria. The system buffer SQL ROWS is set to zero.
Success	One or more rows matched the WHERE clause criteria. The system buffer SQL ROWS is set to 1.

Tables

Table	Explanation
Column and Buffer	A list of columns and the OPEN IVR buffers into which corresponding values will be returned for the row retrieved from the database table.

Table	Explanation
WHERE Clause	The WHERE clause table identifies the conditions against which the transaction will be matched. The WHERE clause table consists of the following fields: TYPE: Value field data type (STRING, NUMERIC, MONEY, DATE, FLOAT) LOGICAL: Logical operator (AND, OR, NOT) (‘s: Left parenthesis type COLUMN: SQL column name or SQL expression OPERATOR: Operator (<, =, >) VALUE: Value or buffer)’s: Right parenthesis type

QUPD - SQL Update cell

The QUPD cell interfaces to a relational DBMS to execute an SQL Update statement that modifies the values in one or more rows of a database table. You identify the list of columns to be changed and the corresponding new values in the "Column and Value" table. You specify the criteria for selecting the rows to be modified in the "WHERE Clause" table. When this cell completes successfully, the system buffer SQL ROWS will contain the number of rows that were updated.

Buffers used

Buffers can be used in the "where" clause.

Buffers updated

QUPD updates the buffer SQL ROWS to reflect the number of rows that are updated. If an error occurs, QUPD sets the buffer SQL Error to the error code returned by the DBMS.

Parameter

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameter	Initial value	Explanation
SQL Table name (Buffer Value)	“ ”	The name of the table that contains the row of data to be updated.

Next branch

Next branch	Explanation
Fail	An error occurred while processing this transaction. The system buffer SQL ERROR will contain the error code returned by the DBMS.
No Rows	No rows in the table or view meet the WHERE clause criteria. The system buffer SQL ROWS is set to zero.
Success	One or more rows were updated in the specified database table. The system buffer SQL ROWS will contain the number of rows that were modified.

Tables

Table	Explanation
Column and Value	A list of column names and their values for the rows being updated in the database table.

Table	Explanation
WHERE Clause	The WHERE clause table identifies the conditions against which the transaction will be matched. The WHERE clause table consists of the following fields: TYPE: Value field data type (STRING, NUMERIC, MONEY, DATE, FLOAT) LOGICAL: Logical operator (AND, OR, NOT) (‘s: Left parenthesis type COLUMN: SQL column name or SQL expression OPERATOR: Operator (<, =, >) VALUE: Value or buffer)’s: Right parenthesis type

RECP - Record Prompt cell

RECP lets the caller record a new prompt or re-record an existing one. If a prompt with the specified number already exists, it will be replaced; if not, it will be created.

To end recording and save the prompt, the caller can press the Termination Digit. Alternatively, the caller can press the Abort Digit to end recording and erase the prompt. The Maximum Recording Time sets a time limit; if the caller does not press either the Termination Digit or the Abort Digit within this limit, recording ends automatically.

The caller may pause recording temporarily by pressing the Pause Digit and then resume by pressing the Resume Digit. The Maximum Pause Time sets a time limit; if the caller does not press the Resume Digit within this limit, then the Pause Timeout Action takes effect. The choices for pause timeout action are ABORT which halts recording and erases the prompt, and TERMINATE which halts recording but saves the prompt.

The Pause Prompt is played when the caller presses the Pause Digit. This prompt may be used to tell the caller how to resume recording. The Resume Prompt is played when the caller presses the Resume Digit; this prompt could tell the caller that recording has resumed.

Prompts listed in the Introduction Prompt Table are played to the caller before recording begins. These prompts could be used to tell the caller about the Pause, Resume, Abort, and Terminate Digits, as well as the Maximum Recording Time.

For information on prompt offsets, see the description for the LANG cell earlier in the manual.

Buffers used

None, unless used as a value.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Prompt To Record	0	The prompt that the caller will record. Can be specified as a number or a buffer.
Maximum Recording Time (1–840 seconds)	60	A value or buffer name specifying the maximum recording time, in seconds. If this value is exceeded, recording will stop automatically.
Termination Digit	DEFAULT	The key the caller presses to end recording and save the prompt. DEFAULT is the termination digit from the Default Cell screen.
Abort Digit	DEFAULT	The key the caller presses to abort recording. If recording is aborted, the prompt will not be saved. DEFAULT is the abort digit from the Default Cell screen.

Parameter	Initial value	Explanation
Abort Prompt	DEFAULT	The prompt the caller hears if recording is aborted. DISABLE means that no prompt will be played. DEFAULT is the abort prompt from the Default Cell screen. This can be either a prompt number or a buffer.
Pause Allowed?	YES	Will the caller be allowed to pause recording by pressing the Pause Digit?
Pause Digit	DEFAULT	The key the caller presses to pause recording. Valid only if pausing is allowed. DEFAULT is the pause digit from the Default Cell screen.
Pause Prompt	DEFAULT	The prompt the caller hears after pausing the prompt that will be played. DEFAULT is the pause prompt from the Default Cell screen. This can be either a prompt number or a buffer.
Resume Digit	DEFAULT	The key the caller can press to resume recording. Valid only if pausing is allowed. DEFAULT is the resume digit from the Default Cell screen.
Resume Prompt	DEFAULT	The prompt the caller hears after pausing the prompt that will be played. DEFAULT is the pause prompt from the default Cell screen. This can be either a prompt number or a buffer.
Pause Timeout Action	DEFAULT	The action taken if the Maximum Pause Time is exceeded. Valid only if pausing is allowed. DEFAULT is the action specified on the Default Cell screen — either abort or terminate. ABORT discards the recording. TERMINATE saves the recording.
Maximum Pause Time (1–75 secs)	15	The maximum time, in seconds, that recording can be paused before the Pause Timeout Action occurs. Valid only if pausing is allowed.

Parameter	Initial value	Explanation
Number of Prompts (max 5)	0	How many prompts to play before recording begins. Can be specified as a number or a buffer. The prompt numbers must be listed in the Introduction Prompt Table.

Next branch

Next branch	Explanation
Error	The prompt number is invalid or the recording process was aborted.
Timeout	The maximum recording time has been exceeded.
Success	Recording has been successful. The prompt will be assigned the specified prompt number and stored.

Tables

Table	Explanation
Prompt Table	The prompts played to the caller before recording begins. Can be specified as prompt numbers or as buffer names.

RETN - Return From a Subroutine Call cell

RETN is used in conjunction with the GSUB cell. When RETN is executed, OPEN IVR returns control to the next cell specified by the GSUB cell. The GSUB cell may be in the same application or a different application than the RETN cell.

The Next Cell - Error branch specified for the RETN cell will be executed if control could not be transferred.

> ***Note:*** Any message databases referenced during subroutine execution will be updated during the RETN cell.

Buffers used

None

Buffers updated

None. Any system buffers that were changed between the GSUB and the RETN cell will remain changed after the RETN cell is executed.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (audit_stat.d):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d file`. The maximum value for this buffer is 32 bytes.

Next branch

Next branch	Explanation
Error	The operation was not successful.

Tables

None

RFAX - Receive Fax cell

Note: This cell can be used with MRS/AP, MRS/Rack, and MRS/Tower fax options only.

RFAX allows the MRS to receive a fax from a caller. Applications that require inbound fax services (for example, fax store-and-forward, fax mailboxes) can be implemented easily in OPEN IVR using this cell. At the point that an RFAX cell is encountered in the call flow, OPEN IVR assumes that a fax machine is at the other end of the line and will initiate sending a fax. RFAX attempts to obtain the necessary fax resource (that is, a port on the fax option board) from the MRS and switch it to the call for the duration of the fax transmission.

Since there are potentially many more lines than fax resources, it is important to devise a strategy in the call flow in the event that an overload situation occurs. One strategy is to retry a number of times to obtain the fax resource, failing only after having exhausted the number of retry attempts. If this situation is unacceptable, it is important to size the system to minimize or eliminate the possibility of this situation occurring. For example, if there are as many fax services as phone lines, the application will never block waiting for a fax resource.

RFAX allocates a handle to contain the inbound fax. This handle will be returned in the buffer CURRENT MESSAGE after the fax transmission has been completed, and the buffer LENGTH will contain the number of pages received. This Fax handle should be stored in a database such as the message database or an SQL database.This fax message will exist on your MRS until a DMSG cell is used to delete it. The application waits until the fax transmission has been completed or an error situation is detected before resuming the application call flow.

For more information, refer to the Release 4.0 *Symposium OPEN IVR Fax Option Guide.*

Buffers used

None

Buffers updated

The buffer CURRENT MESSAGE returns the message handle of the new fax.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	No	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Num. Pages Recd	LENGTH	The buffer containing the number of Received pages received.
Wait for Fax Resource	5	The number of seconds to wait for a fax resource if none is immediately available. The “No Fax Resource” branch is taken if a resource does not become available in the specified time.

Next branch

Next branch	Explanation
Error	The fax transmission failed; there was insufficient storage space; connection was lost, or other unexpected errors occurred.
Timeout	Fax machine synchronization could not be achieved at the start of the transmission.

Next branch	Explanation
No Fax Res	There was no available fax resource.
Success	Receipt of the fax has been completed successfully.

Tables

None

RMSG - Record Message cell

RMSG lets the caller record a message. The number of the newly recorded message is then stored in the CURRENT MESSAGE buffer.

To end recording and save the message, the caller can press the Termination Digit. Alternatively, the caller can press the Abort Digit to end recording, but the message will be discarded and cannot be added to the message database.

The caller can pause the recording process temporarily by pressing the Pause Digit and then resume by pressing the Resume Digit. The Maximum Pause Time sets a time limit. If the caller pauses recording but does not press the Resume Digit within this limit, then the Pause Timeout Action takes effect. The Pause Timeout Action can ABORT which halts recording and erases the message, or TERMINATE which halts recording, saves the message, and takes the success branch.

If the caller presses the Abort Digit or the pause timeout aborts, the application takes the error branch. If the caller presses the Termination Digit or the pause timeout terminates, the application takes the success branch.

The Maximum Recording Time sets a limit on the recording time. If the caller does not press either the Termination Digit or the Abort Digit within this limit, recording ends automatically. The application can then branch to the Timeout next cell; however, there is an option to allow the caller a little more recording time. The `Append Time` parameter limits this additional recording time. Before the append process begins, the Append Prompt is played to the caller; this prompt can be used to tell the caller that a certain length of additional recording time is beginning.

The Introduction Prompt Table lists prompts to be played to the caller before recording begins. The prompts could tell the caller about the Termination, Abort, Pause, and Resume digits, as well as the Maximum Recording Time.

For information on prompt offsets, see the description for the LANG cell earlier in this manual.

After RMSG records a message, the application should add the message to a database. The AMSG (Add Current Message) cell can add the message to the message database, or the message can be added to the SQL database. If the message is not added to a database, it will not become available to OPEN IVR when the call ends even though it is stored on the MRS. Because a caller may hang up at any time during a call, it is important that a newly recorded message be added to the message database as soon as possible or in the cleanup handler that is executed at the end of every call. If an AMSG cell is the Success Next Cell for an RMSG (Record Message) cell, then even if the caller hangs up immediately after recording a message, the application will not end until the message has been saved.

> ***Note:*** In order to allow a caller to record a message, and then re-record and leave a different message instead, your application must first delete the original message with a DMSG cell before allowing the re-record.

Buffers used

None

Buffers updated

The buffer CURRENT MESSAGE returns the number of the newly recorded message. MESSAGE LENGTH provides the length of a recorded message, in seconds.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bits.
Maximum Recording Time (1–840 secs)	60	A value or buffer specifying the maximum recording time, in seconds. If this value is exceeded, recording ends automatically.
Message Length	MESSAGE LENGTH	A buffer which captures the returned value of the length of the current recorded message, in seconds.
Termination Digit	DEFAULT	The key the caller can press to end recording and keep the message. DEFAULT is the termination digit from the Default Cell screen.
Abort Digit	DEFAULT	The key the caller can press to end recording and erase the message. DEFAULT is the Abort Digit from the Default Cell screen.

Parameter	Initial value	Explanation
Abort Prompt	DEFAULT	The prompt the caller hears after pressing the Abort Digit. DISABLE means that no prompt will be played. DEFAULT is the Abort Prompt from the Default Cell screen. This can be a prompt number or a buffer.
Pause Allowed?	YES	Will the caller be allowed to pause recording by pressing the pause digit?
Pause Digit	DEFAULT	The key the caller can press to pause recording. Valid only if pausing is allowed. DEFAULT is the pause digit from the Default Cell screen.
Pause Prompt	DEFAULT	The prompt the caller will hear after pressing the pause digit. Valid only if pausing is allowed. DISABLE means that no prompt will be played. DEFAULT is the pause prompt from the Default Cell screen. This can be a prompt number or a buffer.
Resume Digit	DEFAULT	The key the caller can press to resume recording. Valid only if pausing is allowed. DEFAULT is the resume digit from the Default Cell screen.
Resume Prompt	DEFAULT	The prompt the caller hears after pressing the resume digit. Valid only if pausing is allowed. DISABLE means that no prompt will be played. DEFAULT is the resume prompt from the Default Cell screen. This can be a prompt number or a buffer.

Parameter	Initial value	Explanation
Pause Timeout Action	DEFAULT	The action to take if the Maximum Pause Time is exceeded. Valid only if pausing is allowed. ABORT stops recording and discards the message. TERMINATE stops recording but does not discard the message. DEFAULT is the Pause Timeout Action from the Default Cell screen.
Maximum Pause Time (1–75 secs)	15	The maximum length of time, in seconds, that recording can be paused before the Pause Timeout Action occurs. Valid only if pausing is allowed. DEFAULT is the maximum pause time from the Default Cell screen.
Append Time Disabled?	YES	Allows you to provide callers with more recording time in case they exceed the maximum recording time set in the `Maximum Recording Time` parameter.
Append Time (seconds)	15	The amount of additional recording time you can provide the caller. Valid only if appending is enabled.
Append Prompt	0	The number of the prompt that the caller will hear if more recording time is allowed. Valid only if appending is enabled. The initial value is the prompt “Zero.” This can be a prompt number or a buffer.
Number Of Prompts (max 5)	0	How many prompts to play before recording begins. Can be specified as a number or a buffer. The prompt numbers must be listed in the Introduction Prompt Table.

Next branch

Next branch	Explanation
Error	The message has not been recorded.
Timeout	The maximum recording time has been exceeded.
Success	Recording has been successful. The next cell should be an AMSG cell to ensure that the message will be saved even if the caller hangs up.

Tables

Table	Explanation
Introduction Prompt Table	The five prompts played to the caller before recording begins. Can be specified as prompt numbers or as buffer names.

SAY - Say Text cell

SAY converts text into spoken output. It reads text obtained from buffers and text files and speaks it in a natural-sounding voice to the caller. It can obtain text from ASCII files, databases, host communications, and even the application itself. SAY includes built-in pronunciation rules, dictionaries, and an option for normalizing the pronunciation of unrecognized words.

> ***Note:*** To use the SAY cell, the MRS connection must be Ethernet, and you must have purchased the text-to-speech option.

The `Abort Play on Input` parameter controls what happens if the caller tries to enter input while a prompt is being played. If this parameter is set to "Yes", then a caller who is familiar with the application can skip through the prompts by pressing digits that the application is going to request.

The `Allow Overdialing` parameter determines whether input will be buffered from one cell to another. If `Allow Overdialing` is set to "No" then the input buffer will be cleared before the execution of the PMSG cell. Any digits that are entered and are not retrieved by a GDAT or a MENU cell are lost. Any digits that are entered during the execution of the PMSG cell are saved. If `Allow Overdialing` is set to "Yes" the input buffer is not cleared and any digits that are entered in previous cells and are not retrieved by a GDAT or a MENU cell are saved. Any digits that are pressed during the execution of the PMSG cell are saved.

For example, if there are two cells that both require a single digit of input, and if the `Allow Overdialing` parameter is set to "Yes" on the second cell, then the caller can press two digits in quick succession at the first cell and the second digit will be saved until the second cell needs it. If the `Abort Play on Input` parameter is also set to "Yes", the caller will not even hear the prompt for the second cell before the response is made from the input buffer.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Abort Play on Input?	No	Allows the application developer to control DTMF cut-through. When set to “Yes,” the user can abort a prompt with DTMF input. When set to “No,” DTMF digits do not stop the prompt in progress.
Allow Overdialing?	Yes	Determines if DTMF input is buffered and carried to the next cell. When set to “Yes,” user input is carried over to the next cell. When set to “No,” DTMF input is not carried over to the next cell.

Parameter	Initial value	Explanation
Text From File	NO	Determines if the SAY cell will retrieve the text to be spoken from a buffer or a text file. If “Yes” is selected, the `Text File` parameter will become activated. If No is selected, the SAY cell will use buffers to provide the text.
Text File:	“”	If “Yes” is selected in the previous parameter, enter the filename of the text file here. The text file must be ASCII and reside on the host in `vfiles.d` directory. Create this directory if it does not exist. The text file must have an extension of `.vsn`. In the cell itself, no extension should be specified. For example, in: `vfiles.d/test.vsn`. In the SAY cell: “test”
Wait for TTS Resource (0 – 75 sec)	5	The number of seconds to wait if a response from the Text-to-Speech card is not immediately available.
Buffer Count	0	The number of buffers in use by the SAY cell.

Next branch

Next branch	Explanation
Error	The cell failed to work. Either the text file to be spoken does not exist or other unexpected errors occurred.
Timeout	No text-to-speech resource became available within the time limit set by the Parameters dialog box.
Success	The cell performed successfully and text was spoken.

Tables

Tables	Explanation
Text File Buffer Contexts Table	The SAY cell has access to one buffer for the parameter `Text File` and 10 buffers for Buffer Context Table parameters. The total number of all buffers used in this cell cannot exceed 1900 characters. The initial value for Text File is " ". You can select the buffers with the buffer browser or by typing in the text field. You can also type quoted strings into the buffer. The parameter `Buffer Count` (for the Buffer Context Table only) reflects the number of buffers in use. Each buffer has a field labeled "Contexts." This field is a pull-down option menu The initial value is <None>. You can select <None> or Email.

SFAX - Send a Fax cell

> ***Note:*** In order to use this option, the MRS must have the fax option and the software must be licensed for fax. In order to provide a FAX DATA FILE, the MRS connection must be Ethernet.

SFAX will send one or more faxes to a destination fax machine. Services such as fax-on-demand can be implemented using SFAX.

SFAX assumes that a call to another fax machine has already completed successfully. This is normally accomplished using an outdial cell such as DOUT. However, if the caller is already at a fax machine, it may not be necessary to do an outdial. Instead, before processing the SFAX cell in the call flow, you can inform the caller to place the fax into receive mode.

During processing, the SFAX cell first attempts to attach a fax resource to the line. Since there are potentially many more lines than fax resources, it is important to devise a strategy that avoids an overload situation. One strategy is to retry a specific number of times to obtain the fax resource, failing only after having exhausted the number of retry attempts. If this situation is unacceptable, size the system to minimize or eliminate the possibility of this situation occurring. For example, if there are as many fax services as phone lines, the application will never block waiting for a fax resource.

It is possible to convert a data file into a fax for transmission. SFAX converts the Fax Data File to fax-ready format and then sends it, followed by faxes stored on the MRS in the sequence that they are listed in the Send Fax Table. Up to 30 faxes may be specified in the Send Fax Table; each one is sent in sequence. If an error is encountered in any of the faxes, such as attempting to send a nonexistent fax or a voice file, the transmission will complete with those faxes that could be sent and the “Partial Fax” branch will be taken.

> ***Note:*** When the “Success” branch is taken and the fax machine hangs up, the call flow jumps directly to the cleanup handler. This may present a problem if you need to log the outcome of the SFAX cell.

All files listed in the Send Fax Table must already be in fax-ready format. Typically, these are faxes that have been received and stored on the MRS already in fax format. The fax-ready format supported by the OPEN IVR Fax option is one of these TIFF formats:

- Uncompressed
- Backed bits
- Group 3, 1-dimensional
- Group 4 without uncompressed lines
- Binary file transfer format

These formats are binary images with an expected resolution of 200 x 200 DPI. Gray scale and scaling are not supported.

A special feature of the SFAX cell, the Fax Data File, allows you to merge a form, logo, signature file, and/or printer control commands, with an ASCII file that contains data-embedded Command Line Interface for Fax (CLIFF) commands and Epson escape sequences. The ASCII file is automatically converted to fax-ready format and sent before the faxes listed in the Send Fax Table. This feature allows you to generate sophisticated documents. For example, you may want to send a letter consisting of standard letterhead (on the first page only), the body of the letter, and a signature (on the last page only). The standard letterhead and the signature are fax-ready files that have been previously loaded onto the MRS. The body of the letter is unique and can be identified by the `Fax Data File Name` parameter. Refer to the Release 4.0 *Symposium OPEN IVR Fax Option Guide* for more information.

The Binary File Transfer (BFT) feature allows an application to send binary files over the telephone network to another BFT-compatible device. As with other faxes, the transmission is initiated by the OPEN IVR SFAX cell. However, there are a few prerequisites. The binary file must

- be loaded on the MRS as a VSN
- be in T.434 format
- have a BFT-type header

These requirements can be accomplished, by using the `install` option on the `/sci/files/vsn` menu.

SFAX will first convert and send the file specified by the `Fax Data File` parameter buffer, and then send any faxes specified in the fax table. The Fax Data File, named `name.fax`, must reside in the `fax.d` directory in the base directory of OPEN IVR. The Fax data file specified in the `Fax Data File Name` parameter buffer must not have the .fax extension added to it.

> ***Note:*** All of the files to be manipulated by the SFAX cell, except the Fax Data File (for example, form, logo, and signature files), must already be loaded on the MRS. For further information about Epson escape sequences and the Fax Control Language commands, refer to Appendix A and B in the Release 4.0 *Symposium OPEN IVR FAX Option Guide*.

Buffers used

SFAX uses the buffer FAX DATA.

Buffers updated

SFAX updates the buffer LENGTH.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Number of Pages Sent	LENGTH	The buffer containing the number of pages that were sent. If this is not all the pages in the document, the "Partial Fax" branch will be taken.
Wait for Fax Resource (0 – 60 secs)	5	The number of seconds to wait for a fax resource if none are immediately available. The "No Fax Resource" branch is taken if no resource becomes available in the specified time.
Fax Data File Name	FAX DATA	The buffer containing the name of the Fax Data File. This file can be created with a text editor or user function; it can include ASCII, embedded Epson escape sequences, and embedded FCL commands. The `Fax Data` File must reside in the fax.d directory in the base directory of OPEN IVR. Keep in mind that you need two temporary vsn's when using this parameter.
# Of Faxes to Send	1	The number of faxes (maximum 30) to be sent to the caller (31 maximum including the fax data file). The fax handles for these faxes must be listed in the Send Fax Table. A "handle" is the same as the fax vsn number.

Next branch

Next branch	Explanation
Error	The fax transmission failed, the connection was lost, the fax data file does not exist, a fax does not exist, or other unexpected errors occurred.
Timeout	Fax machine synchronization could not be achieved at the start of transmission.
Partial Fax	A partial fax document was sent.
No Fax Res	There was no available fax resource.
Success	Faxes were sent. When the fax machine hangs up, the call flow jumps directly to the cleanup handler.

Tables

Table	Explanation
Send Fax Table	Specifies the handles (same as fax vsn number) (or buffers containing the handles) of the faxes that will be sent to the caller and the sequence.

STOR - Store Data to Buffer cell

STOR places information into a buffer. The source may be either a buffer, a string of up to 1920 alphanumeric characters, numbers, or any of the other characters that can be typed on a keyboard. The source cannot exceed 1920 characters if it is a buffer, or 31 characters if it is not a buffer. For example, if the source is the DIGITS buffer containing the value 23 and the destination is the MAILBOX ID buffer, then STOR puts the number 23 into the MAILBOX ID buffer. The value in the DIGITS buffer is not changed by this procedure.

Buffers used

STOR uses the buffer specified by the `Source Buffer` parameter.

Buffers updated

STOR updates the buffer specified by the `Destination Buffer` parameter.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	No	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Parameter	Initial value	Explanation
Source (Buffer/Value)	0	A buffer name or a string of characters. The characters or the contents of the buffer will be copied to the destination buffer. If the source is a buffer, then the total cannot exceed 1920 characters. If the source is a value, then the total cannot exceed 31 characters.
Destination Buffer	DIGITS	A buffer name. Can be a system buffer or a user-defined buffer. The STATUS CODE and REPLY CODE system buffers cannot be used as the destination. This parameter can store a maximum of 31 characters.

Next branch

Next branch	Explanation
Success	The data has been copied from the source to the destination.

Tables

None

STPT - Stop Tone cell

STPT stops generation of a continuous tone on the current channel. Continuous tones are generated by the TONE (Start Tone) cell type.

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Next branch

Next branch	Explanation
Success	This is the only branch.

Tables

None

SUBS - Substring Buffer cell

SUBS copies a specified portion of the contents of a buffer or string and places it into a destination buffer. The source can be either a string or a buffer that contains a string. If the source is a string, it must be enclosed in quotation marks.

The offset parameter specifies the starting point in the source string, the first position is 0. The `Length` parameter states the number of characters to copy. If the value of the `Length` parameter is 0, then the range begins at the offset and continues to the end of the source string.

As an example, suppose the source is a buffer containing the following string:

23January1991

| |

| |

Offset1|

Offset 9

If the value of the `Offset` parameter is 9 and the value of the `Length` parameter is 4, then the SUBS cell will copy 1991 from the source buffer and place it in the destination buffer. Any value that was originally in the destination buffer is erased before the new substring is placed in it. The value in the source buffer is unchanged after SUBS is executed.

As another example, suppose the source is the following string:

“23January1991”

| |

| |

Offset 0|

Offset 2

If the value of the `Offset` parameter is 2 and the value of the `Length` parameter is 0, then the SUBS cell will copy January1991 from the source buffer and place it in the destination buffer. Note that the entire substring from the offset to the end of the string is copied because the length is 0.

Buffers used

None

Buffers updated

SUBS updates the buffer specified by the Destination parameter.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Source (Buffer/Value)	DIGITS	Either a string, which must be closed in quotation marks, or a buffer containing a string from which the substring is to be copied. If the source is a buffer, then the maximum value is 1920 characters.

Parameter	Initial value	Explanation
Destination Buffer	DIGITS	The buffer in which the copied substring is to be placed. The maximum value for this buffer is 1920 characters.
Offset (Buffer/Value)	0	The position of the first character to be copied. Characters are counted from left to right in the source string and beginning with zero.
Length (Buffer/Value)	0	Number of characters to be copied. Can be specified as a value or as a buffer containing the value. If the length is 0, the string is copied to the end.

Next branch

Next branch	Explanation
Fail	An error has occurred (for example, there is nothing in the source buffer).
Success	The substring function has been performed successfully.

Tables

None

TIME - Get Current Date and Time cell

TIME gets the current date, time, and day of the week. The CURRENT TIME buffer contains the time as 24-hour clock time in the format HHMM. The CURRENT DATE buffer contains the date in the format MMDDYYYY. The DAY OF WEEK buffer contains the day of the week in numeric format, where 1 is Monday and 7 is Sunday.

Buffers used

None

Buffers updated

TIME updates the buffers specified by the `Current Time`, `Current Date`, and `Day of Week` parameters.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Current Time	TIME	The buffer that will contain the current time.

Parameter	Initial value	Explanation
Current Date	DATE	The buffer that will contain the current date.
Day of Week	DAY	The buffer that will contain the day of the week.

Next branch

Next branch	Explanation
Error	The current date and time were not returned.
Success	The current date and time were returned successfully.

Tables

None

TONE - Start Tone cell

TONE generates a progress tone on the current channel. When run on an MRS/AP, MRS/Rack, or MRS/Tower, TONE can produce the following tones:

- beep tone
- busy tone
- ring tone
- dial tone
- reorder tone
- confirmation tone
- DTMF D tone

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Tone Type	BUSY	The tone to be played. See the Tone Type table.
Duration Continuous ?	NO	If the tone type is continuous, the tone duration is ignored, the tone you have chosen begins playing, and the application immediately takes the success branch of the TONE cell. The application continues while the tone is playing. You must use an STPT (Stop Tone) cell to stop the tone. If the tone type is a DTMF terminate tone denoted with a '*' before the tone type, then pressing a DTMF key also stops the tone. Also, the application cannot play prompts on the channel playing the tone until the tone stops.
Tone Duration (seconds)	1	The duration of the tone, in seconds. The tone plays for the specified length of time (1 to 14 seconds). Control remains in the TONE cell for the duration.

For the MRS/AP and MRS/Tower, TONE can produce the tones listed in the following table.

Tone parameter	Tone type	DTMF terminate
BEEP	beep tone	No
BUSY	busy tone	No
RING	ring tone	No
DIAL	dial tone	No
REORDER	reorder tone	No

Tone parameter	Tone type	DTMF terminate
CONFIRMATION	confirmation tone	No
DTMF D	DTMF D tone	No
*BEEP	beep tone	Yes
*BUSY	busy tone	Yes
*RING	ring tone	Yes
*DIAL	dial tone	Yes
*REORDER	reorder tone	Yes
*CONFIRMATION	confirmation tone	Yes

Next branch

Next branch	Explanation
Success	This is the only branch.

Tables

None

UDLV - Unschedule Delivery cell

UDLV unschedules an event that was previously scheduled by a DELV cell.

At the time the event was scheduled, an event ID number was returned to the DELV cell and placed in a buffer. This event ID number must be entered as the `Schedule Event ID` parameter of the UDLV cell to indicate which event to unschedule. If necessary, you can use an LDLV (Get Schedule Event List) cell to get the event ID number again.

> ***Note:*** You can use the `devnt` and sched tools in conjunction with the UDLV cell.

`devnt` displays the contents of the `csc_events` file, which resides in the `sys_files` directory. This file contains a list of all the times, telephone numbers, and event IDs scheduled to run for the applications.

`sched` provides the same functionality as the DELV, UDLV, and LDLV cells, but with a command line interface.

Refer to the section about Tools in the Release 4.0 *Symposium OPEN IVR System Administration Guide* for information.

Buffers used

UDLV uses the buffer specified by the `Schedule Event ID` parameter.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Schedule Event ID	DELIVERY EVENT ID	The buffer containing the ID number of the event to be unscheduled.

Next branch

Next branch	Explanation
Error	The delivery event ID is invalid.
Success	The event has been unscheduled.

Tables

None

UMSG - Update Message List cell

> ***Note:*** The UMSG cell is no longer necessary since its functionality is now incorporated in the related AMSG (Add Current Message) and DMSG (Delete Message) cells. Its description is included in this manual as a reference for existing applications that include the UMSG cell.

For applications developed using previous versions of OPEN IVR, UMSG updates a mailbox after messages have been added to it by AMSG cells or deleted by DMSG (Delete Message) cells, or both.

Buffers used

None

Buffers updated

The buffer NUMBER OF MESSAGES lists the number of messages stored in the mailbox.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.

Next branch

Next branch	Explanation
DB Error	The message database could not be updated.
Invalid ID	The mailbox ID is invalid because the mailbox has not yet been accessed.
Success	The mailbox was updated.

Tables

None

UPDT- Update Information Database cell

UPDT allows data to be inserted into an informational database. If the record specified is found in the specified information database, up to 10 buffers of data can be inserted into the record. If this cell has fewer buffers assigned than it has fields, the excess fields default to the empty string (“ “).

Buffers used

UPDT uses the buffer RECORD NUMBER.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Database Name	<None>	The name of the information database that is to be updated.

Parameter	Initial value	Explanation
Record Number	DIGITS	The buffer that contains the storage location number that is to be updated in an information database. The buffer can be a system buffer or a user-defined buffer. This buffer cannot exceed 5 characters.
Buffer count	0	How many buffers of information to insert into a database record. The buffers must be listed in the Input Buffer Table.

Next branch

Next branch	Explanation
Not Found	There was no record in the information database for the specified record number.
Found	The data was inserted into the specified record number.

Tables

Table	Explanation
Input Buffer Table	The name of the buffers that will contain the data to be inserted into the information database. The data contained in these buffers cannot exceed 31 characters. If the buffer contents exceed 31 characters, then the data is truncated.

UPWD - Update Password cell

UPWD changes the password associated with a mailbox. The new password will be taken from a specified buffer. Before UPWD can be used, MSGS (Get Message List) must be used to access the mailbox.

Buffers used

UPWD uses the buffer specified by the `Password Buffer` parameter.

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Password	PASSWORD	The buffer that contains the new password. Can be a system buffer or a user-defined buffer. The data in this buffer cannot exceed 31 characters.

Next branch

Next branch	Explanation
Error	An error has occurred — the mailbox ID was invalid or the password could not be changed.
Invalid Input	The new password is invalid.
Success	The password has been updated.

Tables

None

USER - Connect User Functions cell

The USER cell type is designed to be used by experienced computer programmers. The USER cell interfaces the application with a User Function, which is customized code that is written in either the “C” or “C++” programming language. Before you use this cell type, read the chapter about User Functions in the Release 4.0 *Symposium OPEN IVR Application Development Guide*.

A User Function is a set of individual user-defined functions bundled together. The User Function invokes the user-defined function that is indicated by the `Function Code` parameter. The User Function can also play specified prompts during the process of invoking the user-defined function.

When you configure a USER cell, you designate a set of input buffers to pass to the User Function any needed information. You also designate a set of output buffers so that the User Function can return information to the application when it is completed.The total of all data passed through the input buffers cannot exceed 1920 characters. Up to 1920 characters in total may be passed in the output buffers from the User Function. AP software treats numbers as character strings (for example, 900 is saved in a OPEN IVR buffer as “900”).

You can also designate a set of prompts to play during the execution of the User-defined Function. These prompts can be configured to play through once, or to repeat until the User Function completes the request. These prompts can be interrupted upon User Function completion or set to finish before the next cell in the application is executed.

When completed, the User Function returns a status code of Success, Failure, or Timeout. The User Function also returns a reply code. The application then branches to the next cell, depending on the reply code and the status code:

- If the Status Code is Success, the next cell is dependent upon the reply code. The USER cell checks the Reply Code Table to find the next cell corresponding to the Reply Code.
- If the Status Code is Failure, the application branches to the Fail next cell.

- If the Status Code is Timeout, the application branches to the Timeout next cell.

Buffers used

The USER cell uses the input buffers listed in the Input Buffer Table.

Buffers updated

The USER cell also updates the output buffers listed in the Output Buffer Table.

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
User Function Name	<NONE>	The name of the User Function to interface with the application. For multithreaded User Functions, the name of the User Function can include a maximum of seven characters. For User Functions that are not multithreaded, the name of the User Function can include a maximum of nine characters.

Parameter	Initial value	Explanation
Function Code	1	The individual user-defined function to be executed this time.
Timeout (seconds)	15	Maximum time, in seconds, for the User Function to perform its task. If this value is exceeded, a timeout will occur and a Timeout status code will be returned. The timeout must be maintained in the User Function. OPEN IVR does not manage the timeout.
Input Buffer Count	0	Number of buffers to be passed from the application to the User Function. The names of the buffers must be listed in the Input Buffer Table.
Output Buffer Count	0	Number of buffers to be passed back to the application from the User Function. The names of the buffers must be listed in the Output Buffer Table.
Interruptible Prompts?	No	Determines if the User Function aborts the prompts when it is completed.
Repeat Prompts?	No	Determines if the User Function continues to repeat the list of prompts until the completion of the user-defined function.
Number of Prompts	0	Specifies the number of prompts to play to the caller. You can specify this information as a number or as a buffer. List prompt numbers in the User Prompt Table.

Next branch

Note: If the User Function returns a Success status code, the next branch comes from the Reply Code Table.

Next branch	Explanation
Timeout	A Timeout status code has been returned.
Fail	A Failure status code has been returned. This may indicate that the User Function does not exist or shutdown prematurely, or the reply code does not match one of the valid reply codes.

Tables

Table	Explanation
Reply Codes	Lists each possible reply code. Valid reply codes are 0 through 9.
Input Buffer Table	Lists the name of each input buffer. If values are entered directly, then the value cannot exceed 31 characters. If you specify buffers, then the total of all data for the input buffer table cannot exceed 1920 characters.
Output Buffer Table	Lists the name of each output buffer.
User Prompt Table	Lists the prompts that play to the caller. You can specify the prompts as prompt numbers or as buffer names.

VINP - Voice Input cell

This cell enables speech recognition. VINP specifies the listening mode of the application. If you enable voice input, a speech recognizer will map expected spoken words to digits. You can use the same application to support DTMF and voice input. In order to use the VINP cell in your application, you need the speech-recognition option and hardware.

The VINP cell is used to toggle the mode of the application between voice input mode and DTMF only input mode. The default input mode for an application is DTMF only. This mode is always in effect. After the VINP cell is executed in an application, cells requiring input such as GDAT and MENU listen for expected spoken words as well as DTMF digits. The application remains in this dual input mode until the end of a call, or another VINP cell is encountered, disabling optional voice input. Optional voice input mode may be enabled or disabled numerous times throughout the application. Execution of the VINP cell does not check for the existence of the speech recognition resource. Detection does not occur until the first MENU or GDAT cell after the VINP cell.

> ***Note 1:*** The state of the input mode of the application is preserved through calls to subroutines (GSUBs) and execution of the EXEC cell.
>
> ***Note 2:*** If you place the VINP cell immediately before a PLAY cell, the application will take the Error branch from the PLAY cell. This happens even if the system plays the PLAY cell prompts.

The `Use Common Vocabularies` field determines which vocabularies to display in the Vocabulary Name field.

If you set `Use Common Vocabularies` to “Yes”, the Common Vocabulary list will display only those vocabularies shared by all languages. You can use this method to set a single vocabulary in the VINP cell and switch among different languages using the LANG cell.

If you set `Use Common Vocabularies` to “No”, the Unique Vocabulary list will display all the vocabularies listed in the system file. With this method, you find which vocabularies are enabled on the MRS.

The Vocabulary Group parameter in the LANG cell lists those groups with common vocabularies. You can enter this value directly into the text field. OPEN IVR validates this against the list specified by the field entered by the Vocabulary Group browser and warns of invalid values. This field contains the vocabulary names for comparison and display in the VINP cell when the Use Common Vocabularies parameter is set to "Yes". Although it is not listed in the browser list, you may specify "None." For more information, see Appendix B, "Customization and Internationalization," of the Release 4.0*Symposium OPEN IVR Application Development Guide.*

Buffers used

None

Buffers updated

None

Parameters

Parameter	Initial Value	Explanation
Call Audit Enabled?	No	Determines if this cell will log the following information to the call audit statistics file (audit_stat.d): Application Name Cell Name Cell Number Date and Time of Cell Execution Contents of the Cell Comment Field Contents of the Call Audit Information buffer
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the audit_stat.d file. The maximum value for this buffer is 32 bytes.

Parameter	Initial Value	Explanation
Enable Voice Input	Yes	Disabled/Enabled
Use Common Vocabularies	Yes	The field used for selecting common vocabularies.
Common Vocabulary	“None”	The vocabulary selected.
Unique Vocabulary	“None”	The vocabulary selected

Next branch

Next branch	Explanation
Success	New input mode has been set.

Tables

None

XFER - Transfer Outdial cell

XFER outdials a phone call on behalf of a caller who already has a call in progress on the MRS. The MRS dials a second party's phone number, transfers the original caller to the new call, and then releases the call. If the transfer is successful, the application ends. If the transfer cannot be performed, the application branches to the Error next cell and continues to process the original call, with no special recovery required.

To perform the transfer, XFER uses the hook-flash transfer capabilities of a switch. For this reason, XFER requires the MRS to be connected to a switch that supports hook-flash transfer.

XFER, in contrast to COUT (Continuation Outdial), performs a blind transfer (that is, it makes no attempt to ensure that the second party accepts the call). The call is released as soon as the digits are dialed and before ringing is detected.

Buffers used

XFER uses the buffer specified by the `Phone Number` parameter.

Buffers updated

None

Parameters

Parameter	Initial value	Explanation

Call Audit Enabled?	NO	Determines if this cell will log the following information to the call audit statistics file (`audit_stat.d`):
		`Application Name`
		`Cell Name`
		`Cell Number`
		`Date and Time of Cell Execution`
		`Contents of the Cell Comment Field`
		`Contents of the Call Audit Information buffer`

Parameter	Initial value	Explanation
Call Audit Information	DIGITS	When you enable Call Auditing, the Call Auditing Process logs the contents of this buffer to the `audit_stat.d` file. The maximum value for this buffer is 32 bytes.
Dial Tone Type	NONE	This field is not used by the cell.
Phone Number	DIGITS	The buffer containing the phone number to be dialed. The contents of this buffer cannot exceed 31 characters. Use of a comma in the `Phone Number` parameter performs a one second delay.

Next branch

Note: If the transfer outdial is successful, the application ends; there is no next branch.

Next branch	Explanation
Error	An error occurred during the process of outdialing the phone number. This is the only branch.

Tables

None

Glossary

This glossary provides definitions of many of the terms used in this guide. Some of these terms may have additional meanings not described here.

Acoustic Coupler

A device (such as the Audio Interface Unit) used to interface between sound equipment and a port on an MRS.

Administration tools (from the Control Panel)

Used to configure and control the AP software installation.

ANI (Automatic Number Identification)

Protocol implemented in some trunk cards that records the calling number.

Application Editor

Used to graphically create or edit interactive voice response applications.

AP software

Nortel's premier voice application development and management software package.

Application

A customized program that controls activity on one or more telephone trunks connected to an MRS voice system.

Branch

A pathway from one cell in an application to the next cell.

Buffers

Used to store information from one cell and pass it to another cell.

Cell

The basic element of an application. Each cell causes some action to be performed (for example, playing a prompt to a caller). Each cell has a set of branches to other cells. After the cell performs its action, it determines which branch the application should follow to the next cell.

Channel

A telephone trunk within a cluster of MRSs.

CO

Central Office

Control Panel (Symposium OPEN IVR Control Panel)

AP software panel presenting the icons from which you can access the Administration tools, System Database Editor, Application tools, System Reports tools, and the Prompt Management tools.

Database

A collection of related information arranged for ease and speed of retrieval.

DTMF (Dual Tone Multi Frequency)

Term that describes Touchtone (push button) dialing. Applications can collect information from callers by having them press telephone keys to create DTMF tones.

EXEC

Cell that executes an AP software application on the current channel.

Falsing

Condition when certain frequencies in a voice recording are incorrectly interpreted as DTMF tones. In some applications, false DTMF tones may cause the system to perform unwanted activities, such as selecting menu choices, terminating playback, or hanging up prematurely.

Field

The specific location of information (data) within a record in a relational database.

Gain

The increase in signal power, measured in decibels, when the signal is boosted by an electronic device.

Ground start

Method of signaling on the trunk where one side of the two wires (typically the ring wire) is momentarily grounded to obtain a dial tone. Normally used with PBXs.

Hook-Flash

Depressing and releasing the plunger or handset-cradle.

Host Link

Ability of OPEN IVR to communicate with other host computers supported by one of the OPEN IVR gateway products. *See* COMA, COMI, and COMO.

IVR

Interactive Voice Response

IVR Developer

A licensed software feature providing application development capabilities through the Application Editor tool.

Loopstart

Method to start (seize) a phone line or trunk by giving it a supervisory signal (done by taking it off the hook). Loopstart seizes the line by bridging through the resistance of the tip and ring wires of the telephone line, which starts the dial tone. Normally used for single lines or key systems.

MF (Multifrequency)

MF tones are used by ANI. AP software's applications can receive and store MF digits when the ANI option is in use.

MRS

Multimedia Resource Server. The MRS/Rack and the MRS/Tower are MRSs.

MRS/Rack

A unit comprising a rack-mountable Application Processor (AP) and a rack-mountable Multimedia Resource Server (MRS). Multiple MRS/Racks can be installed in cabinets and stacked to take up less room.

MRS/Tower

The MRS/Tower platform is comprised of an Application Processor (AP) and a Tower Multimedia Resource Server (MRS).

Node

A grouping composed of an application processor (running RSP) connected to one or more MRSs.

Parameter

A variable used to define the function of AP software's cells. You set parameters in the parameter window for each cell (when using the graphical application editor), or in the cell window (when using the character-based application editor).

PBX (Private Branch Exchange)

A private phone system allowing communication within a business and between the business and the public telephone system.

Port

See Trunk.

Prompt Management tools

Accessible from the Control Panel; used to record, load, and update prompts.

Record

(1) To store sound on tape or disk for later playback.

(2) In a database, a group of related data items (fields) treated as one item.

SFAX (Send Fax)

Cell that sends one or more faxes to a destination fax machine.

SQL

Structured Query Language. SQL is a type of relational database.

Subscriber

Person serviced by an interactive voice processing application (such as voice mail).

System Database Editor

Used to create a message or information database, and to edit an information database.

System Reports tools

Accessible from the Control Panel; used to access information about the system's activities.

Telco

Telephone company.

TRS

Terminal Resource Server; manages the assignment of system resources to the Gateway products.

Trunk

A telephone communication path between two points. An MRS/Tower with 48 trunks allows 48 communication paths (paths available for telephone calls). Frequently referred to as a port.

VSN (Voice Storage Number)

Internal numbering system used for prompts, messages, and faxes (if the fax option is installed) used by the MRS; AP software uses its own numbering system.

Wink

A momentary interruption in single frequency tone that indicates the distant central office is ready to receive the digits that were just dialed.

XAE

X-Window Application Editor, another term for the Application Editor.

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Cell Catalog

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